STRUCTURED WIRING

by ELAN

MAC24

music & communications distribution center

INSTALLATION MANUAL

ELAN HOME SYSTEMS™

WARNING

RISK OF ELECTRIC SHOCK
DO NOT OPEN!

CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

The lightning flash with arrowhead symbol within an equilateral triangle is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instruction in the literature accompanying the appliance.

WARNING: TO REDUCE THE RISK OF FIRE OR SHOCK, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

IMPORTANT SAFETY INFORMATION

Read Information—All the safety and operating information should be read before the appliance is operated.

Follow Information—All operating and use information should be followed.

Retain Information—The safety and operating information should be retained for future reference.

Heed Warnings—All warnings on the appliance and in the operating instructions should be heeded.

Wall Mounting—Mounting of this appliance should be done only by an authorized installer.

Ventilation—The appliances should be situated so that their location or position does not interfere with their proper ventilation. These appliances should never be placed near or over a radiator or heat register. These appliances should not be placed in a built-in installation such as a bookcase or cabinet that may impede the flow of air through the ventilation openings.

Non-Use Periods—Appliances that are left unattended and unused for long periods of time should be de-energized.

Power Sources—The appliances should be connected to a power supply only of the type described in the operating instructions or as marked on each appliance. If you are not sure of the type of power supply to your home, consult your authorized ELAN dealer or local power company.

Grounding or Polarization—These audio products must be connected to a grounding-type alternating-current circuit on a dedicated circuit breaker. This is a safety feature. The green safety wire from the A.C. circuit must be connected.

©2004 ELAN Home Systems. All Rights Reserved. 04/04.

WARNING
RISK OF ELECTRIC SHOCK
DO NOT OPEN

Water and Moisture—To reduce the risk of electric shock or fire, these appliances should not be used near water—for example, near a bathtub, washbowl, kitchen sink, laundry tub, in a wet basement, or near a swimming pool.

Power Cord Protection—A.C.Power supply circuits should be routed by a certified electrician only, in accordance with the NEC standards.

Telephones—Avoid using a telephone (other than a cordless type) during an electrical storm. There may be a remote risk of electrical shock from lightning. Do not use a telephone to report a gas leak if the leak is in the vicinity of the ELAN electronic equipment because of risk of fire or explosion.

Cleaning—Turn off the circuit breaker to this audio product before cleaning. Do not use liquid or aerosol cleaners. Use a damp cloth for cleaning.

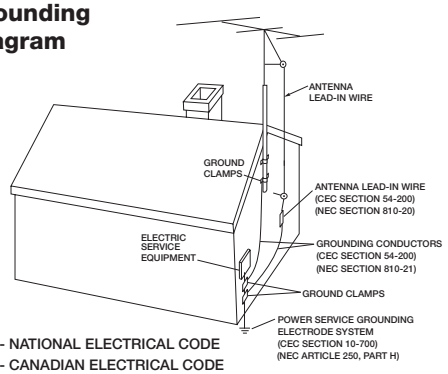
Power Lines—An outdoor antenna should be located away from power lines. When installing an outside antenna system, extreme care should be taken to avoid touching power lines or circuits, as contact with them may be fatal.

Outdoor Antenna Grounding—If an outside antenna or cable system is connected to these audio products, be sure the antenna or cable system is grounded so as to provide some protection against voltage surges and built-up static charges. Section 810 of the U.S. National Electrical Code, and Section 54 of the Canadian Electrical Code, provide information with respect to proper grounding of the mast and supporting structure, grounding of the lead-in wire to an antenna discharge unit, size of grounding conductors, location of antenna-discharge unit, connection to grounding electrodes, and requirements for the grounding electrode. See the grounding diagram (right).

Overloading—Do not overload wall outlets and extension cords, as this could result in fire or electric shock.

Object and Liquid Entry—Never insert objects of any kind through the openings of these appliances, as they may touch dangerous voltage points or short-out parts that could result in a fire or electric shock. Care should be taken so that objects do not fall and liquids are not spilled into the appliance through openings in the enclosure.

Grounding Diagram


ANTENNA LEAD-IN WIRE
GROUND CLAMPS
ANTENNA LEAD-IN WIRE (CEC SECTION 54-200) (NEC SECTION 810-20)
ELECTRIC SERVICE EQUIPMENT
GROUNDING CONDUCTORS (CEC SECTION 54-200) (NEC SECTION 810-21)
GROUND CLAMPS
POWER SERVICE GROUNDING ELECTRODE SYSTEM (CEC SECTION 10-700) (NEC ARTICLE 250, PART H)

NEC - NATIONAL ELECTRICAL CODE
CEC - CANADIAN ELECTRICAL CODE

Servicing—Do not attempt to service these appliances yourself, as opening or removing covers may expose you to dangerous voltage or other hazards. Refer all servicing to qualified service personnel.

Damage Requiring Service—These appliances should be serviced by qualified service personnel when:

- A power supply connection or a plug has been damaged or
- If liquid has been spilled into the appliance or objects have fallen into the appliance or
- The appliance has been exposed to water or moisture or
- The appliance does not appear to operate normally or exhibits a marked change in performance or
- The appliance has been dropped or the enclosure damaged.

Replacement Parts—When replacement parts are required, be sure the service technician has used replacement parts specified by the manufacturer or that have the same characteristics as the original part. Unauthorized substitutions may result in fire, electric shock, or other hazards. The Master Control Unit battery should be replaced only after turning the power off and only by an authorized installer.

Safety Check—Upon completion of any service or repairs to this audio product, ask the service technician to perform safety checks to determine that the audio product is in proper operating condition.

Lightning—For added protection for these audio products during an electrical storm, or when they are left unattended and unused for long periods of time, turn off the circuit breaker, and disconnect the antenna or cable system. This will prevent damage to the audio products due to lightning and power-line surges.

©2004 ELAN Home Systems. All Rights Reserved. 04/04.

IMPORTANT USER INFORMATION

MAC24 has been registered with the Federal Communications Commission (FCC) in accordance with Parts 68 of its rules. On the front panel of the MAC24Music & Communications Distribution Amplifier is a label that contains, among other information, the FCC registration number and ringer equivalence number (REN) for this equipment. If requested, this number must be given to the telephone company.

FCC Registration Number:	5J7USA-30852-MA-T
Ringer Equivalence Number (REN):	0.6B 1.1F
Load Number (LN):	12B

The REN is useful in determining the quantity of devices you may connect to your telephone line and still have all those devices ring when your number is called. In most, but not all areas, the sum of all RENs of all devices connected to one line should not exceed five (5.0). To find out the number of devices you may connect to your line, as determined by the REN, contact your local telephone company for the maximum REN for your calling area.

If your telephone equipment causes harm to the telephone network, the telephone company may discontinue your service temporarily. If possible, they will notify you in advance. But, if advance notice isn't practical, you will be notified as soon as possible. You will be notified of your right to file a complaint with the FCC.

Your telephone company may make changes in its facilities, equipment, operations, or procedures that could affect the proper functioning of your equipment. If they do, you will be notified in advance to give you an opportunity to maintain uninterrupted telephone service. If you experience trouble with this telephone equipment, please contact TECHNICAL SUPPORT at 1-859-269-7760 for information on obtaining service or repairs. The telephone company may ask that you disconnect this equipment from the network until the problem has been corrected or until you are sure the equipment is not malfunctioning.

If the telephone features are not functioning or are malfunctioning, switch off the circuit breaker connected to the system. This will directly connect the telephone line with all the telephones connected to the package. Contact your dealer for repairs.

This equipment may not be used on coin service provided by the telephone company. Connection of party lines is subject to state tariffs. (Contact your state public utility commission for information).

This device complies with Part 15 of the FCC Rules. Operation is subject to the following conditions: (1) This device may not cause harmful interference and (2) this device must accept any interference received, including interference that may cause undesired operation.

Notice

The Industry Canada label identifies certified equipment. This certification means that the equipment meets certain telecommunications network protective, operational, and safety requirements. Industry Canada does not guarantee the equipment will operate to the user's satisfaction.

Before installing this equipment, users should ensure that it is permissible to be connected to the facilities of the local telecommunications company. The equipment must also be installed using an acceptable method of connection. In some cases, the company's inside wiring associated with a single line individual service may be extended by means of a certified connector assembly (telephone extension cord). The customer should be aware that compliance with the above conditions may not prevent degradation of service in some situations.

The Load Number (LN) determines the number of devices you may connect to your line. The LN sum of all devices connected to one line shall not exceed 100.

Repairs to certified equipment can only be made by your local ELAN Installer.

This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of Industry Canada.

Contact TECHNICAL SUPPORT at 1-859-269-7760 for repairs to certified equipment. For **On-Site** Technical Support, call 1-800-622-ELAN (3526).

©2004 ELAN Home Systems. All Rights Reserved. 04/04.

Table of Contents

Safety Information..... 2

System Overview.....6

1. Distribution Center Installation..... 7

2. Audio Connections.....9

3. Control Device Connections..... 17

4. Telephone and Door Station Connections.....26

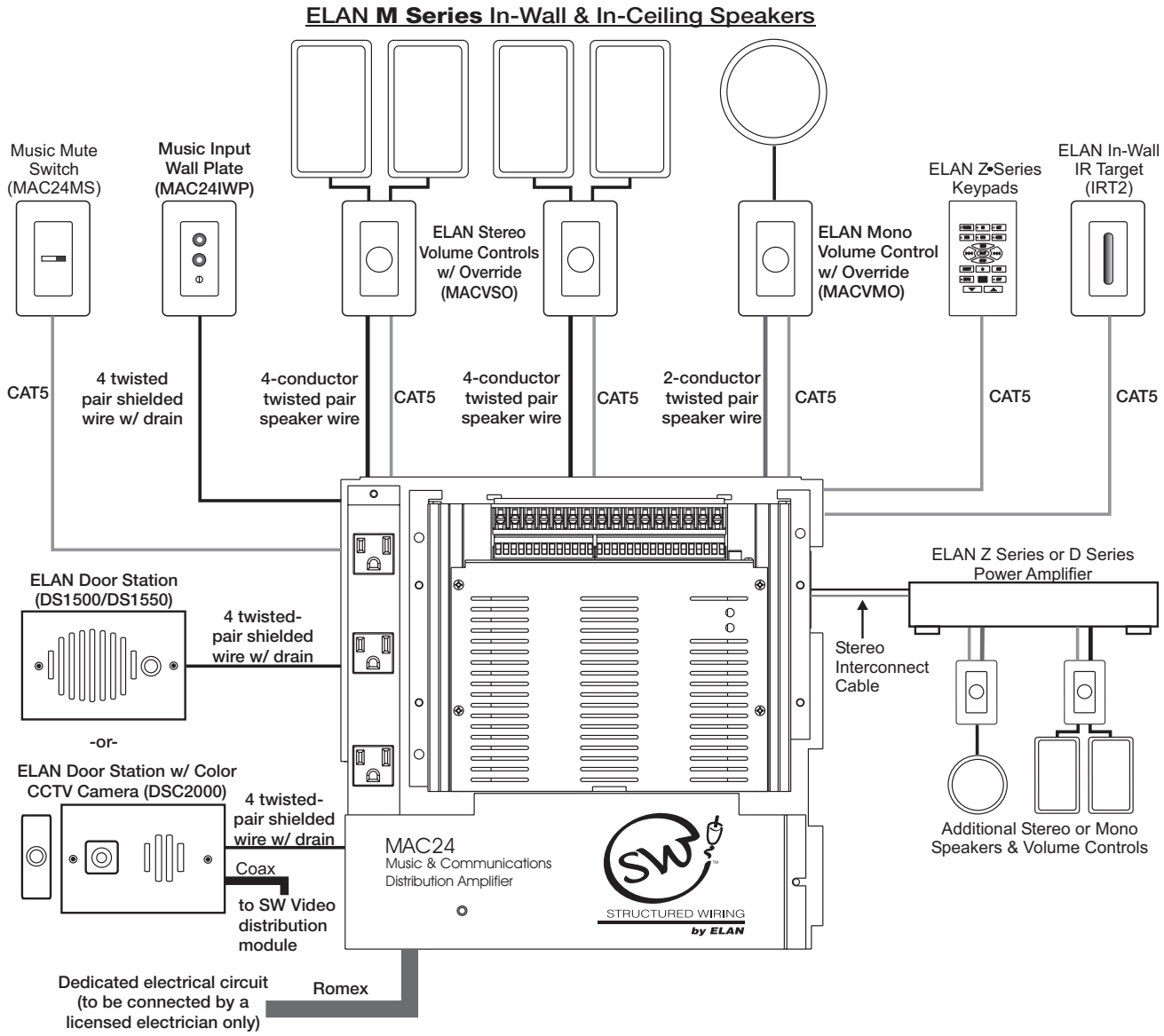
5. Troubleshooting..... 32

Warranty..... 38

Telephone Quick Reference.....40

©2004 ELAN Home Systems. All Rights Reserved. 04/04.

MAC24 System Overview & Wire Runs


ELAN M Series In-Wall & In-Ceiling Speakers
Music Mute Switch (MAC24MS)
Music Input Wall Plate (MAC24IWP)
ELAN Stereo Volume Controls w/ Override (MACVSO)
ELAN Mono Volume Control w/ Override (MACVMO)
ELAN Z•Series Keypads
ELAN In-Wall IR Target (IRT2)
CAT5
4 twisted pair shielded wire w/ drain
4-conductor twisted pair speaker wire
CAT5
4-conductor twisted pair speaker wire
CAT5
2-conductor twisted pair speaker wire
CAT5
CAT5
CAT5
ELAN Door Station (DS1500/DS1550)
4 twisted-pair shielded wire w/ drain
-or-
ELAN Door Station w/ Color CCTV Camera (DSC2000)
4 twisted-pair shielded wire w/ drain
Coax
to SW Video distribution module
ELAN Z Series or D Series Power Amplifier
Stereo Interconnect Cable
Additional Stereo or Mono Speakers & Volume Controls
MAC24
Music & Communications Distribution Amplifier
STRUCTURED WIRING by ELAN
Dedicated electrical circuit (to be connected by a licensed electrician only)
Romex

©2004 ELAN Home Systems. All Rights Reserved. 04/04.

1. Distribution Center Installation

To mount the MAC24 into an ELAN SW Enclosure (E18, E32/G32)**:**

1. Remove power supply cover. Be sure not to lose the screws once you remove them!

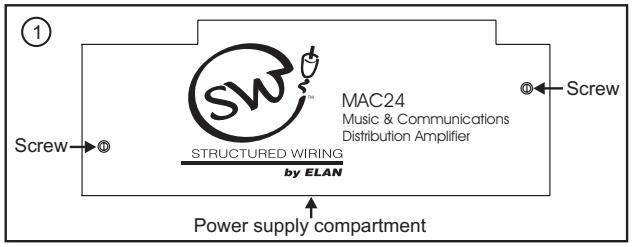
2. Install cable connectors into hole at bottom of the MAC24 power supply compartment and into 3/4" knock-out at bottom of E18 or E32 enclosure. It is important that this be done now as access will not be available once the MAC24 pan has been attached to the grid. Replace power supply compartment cover when done.

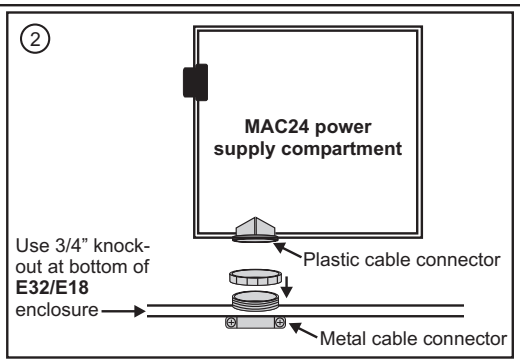
3. Push 'Snap Latch' grommets (2) into the holes of the MAC24 pan. Push 'Snap Latch' pins half-way into grommets.

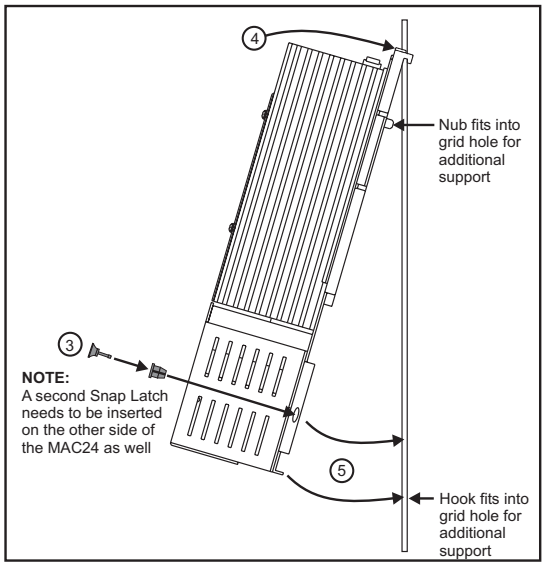
4. Hook pan to the grid from the top. See diagrams below for installing the MAC24 into E32 and E18 enclosures. Different grill holes are used for each enclosure.

5. Slowly swing pan into place. Metal nub and bottom hook fit into grid holes, providing additional support.

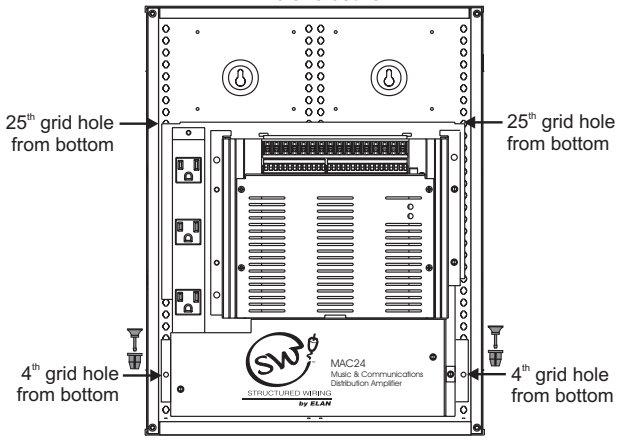
6. Push Snap Latch pins fully into grommets to lock the MAC24 in place.



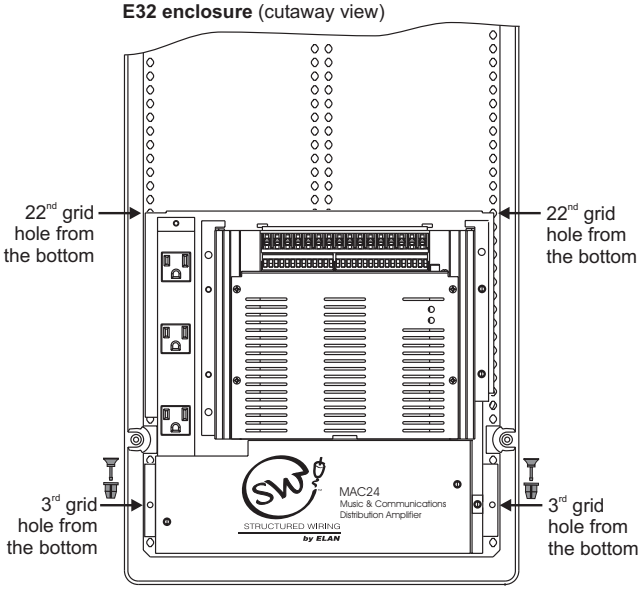



4
Nub fits into grid hole for additional support
3
NOTE:
A second Snap Latch needs to be inserted on the other side of the MAC24 as well
5
Hook fits into grid hole for additional support

E18 enclosure



E32 enclosure (cutaway view)



©2004 ELAN Home Systems. All Rights Reserved. 04/04.

120VAC Connections

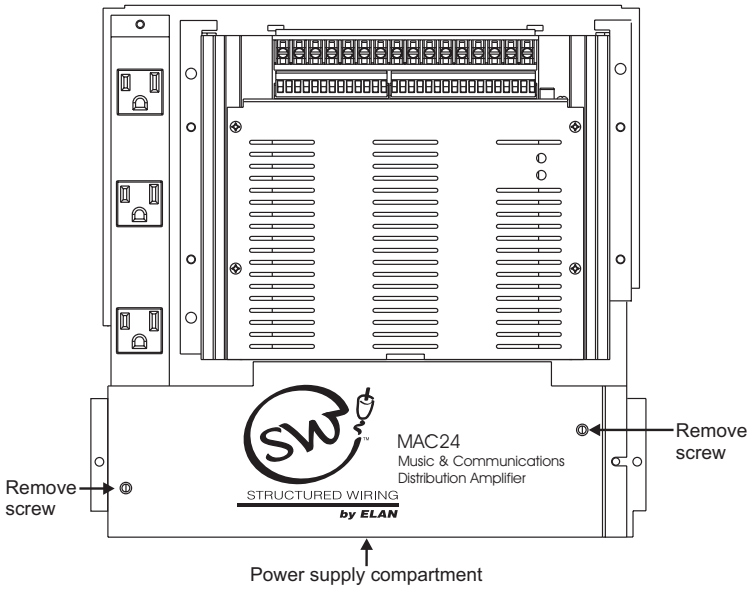
WARNING:
All 120VAC electrical connections should be made by a licensed electrician only!

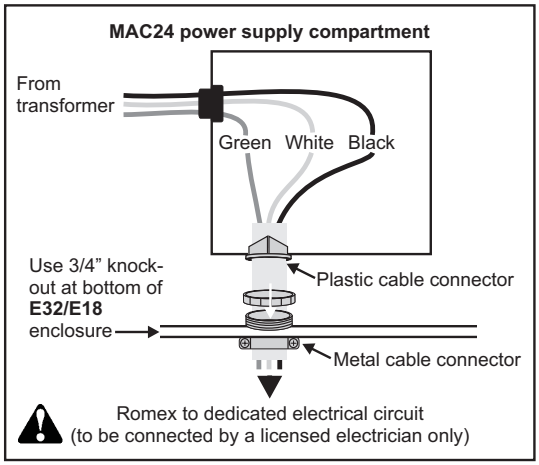
1. Remove power supply cover (be sure not to lose the screws once you remove them!)

   A cable connector should already have been installed in the hole at bottom of the MAC24 power supply compartment and in the 3/4" knock-out at bottom of E18 or E32 enclosure . If not, you will need to remove the MAC24 from the grid and follow the directions on p. 7.

2. Connect the MAC24 to a dedicated electrical circuit as shown in the diagram below.

3. Replace power supply compartment cover when finished.




MAC24 power supply compartment
From transformer
Green White Black
Use 3/4" knock-out at bottom of E32/E18 enclosure
Plastic cable connector
Metal cable connector
Romex to dedicated electrical circuit
(to be connected by a licensed electrician only)

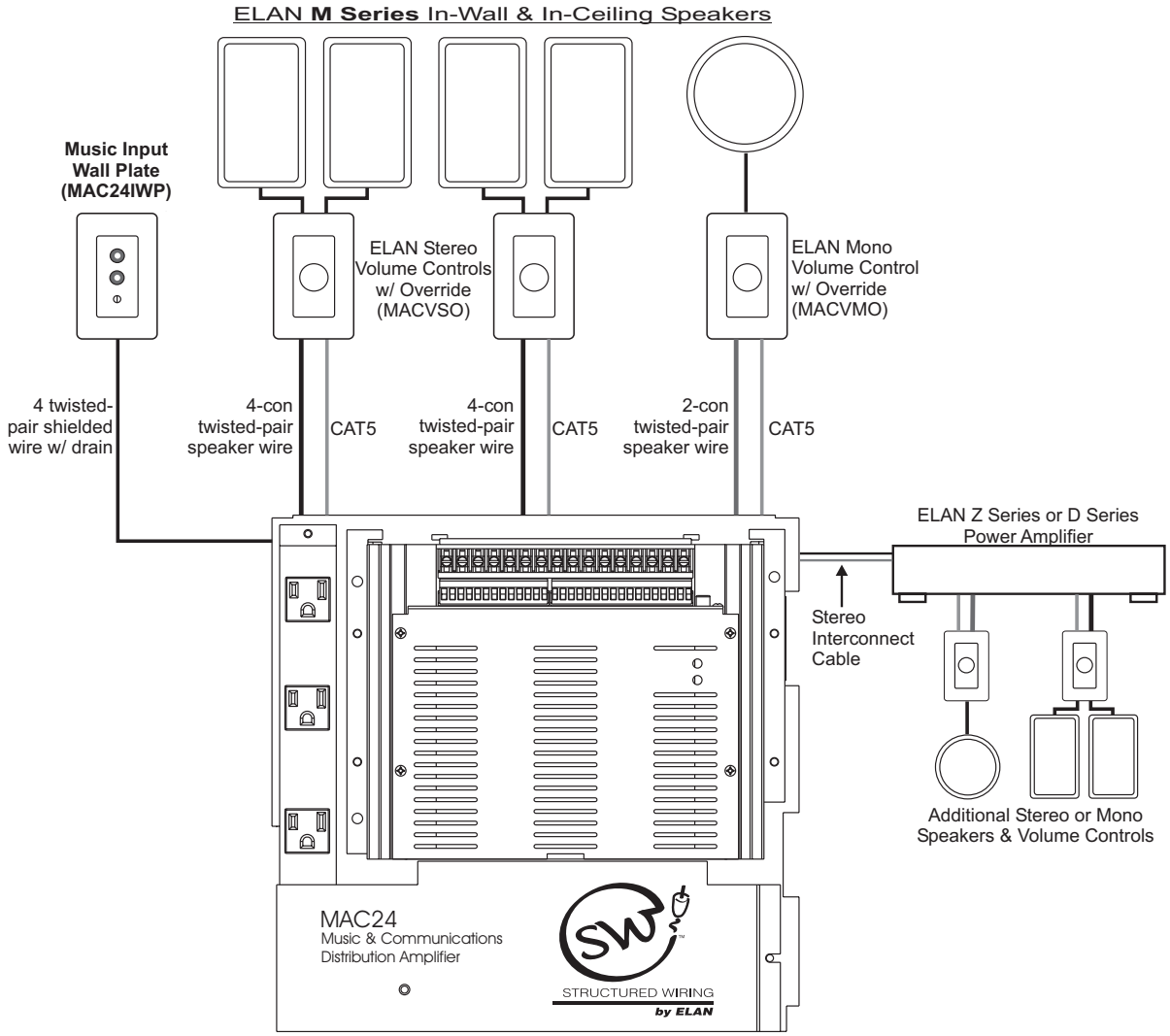
©2004 ELAN Home Systems. All Rights Reserved. 04/04.

2. Audio Connections

This section details the audio connections necessary for proper installation of the MAC24. These connections include:

- **Music Input Wall Plate (MAC24IWP)**
- **Volume Controls (MACVSO/MACVMO)**
- **Speakers (Mono and/or Stereo)**
- **Using Line Level Outputs to Add More Rooms of Music**

MAC24 Audio Wire Runs


ELAN **M Series** In-Wall & In-Ceiling Speakers
Music Input Wall Plate (MAC24IWP)
ELAN Stereo Volume Controls w/ Override (MACVSO)
ELAN Mono Volume Control w/ Override (MACVMO)
4 twisted-pair shielded wire w/ drain
4-con twisted-pair speaker wire
CAT5
4-con twisted-pair speaker wire
CAT5
2-con twisted-pair speaker wire
CAT5
ELAN Z Series or D Series Power Amplifier
Stereo Interconnect Cable
Additional Stereo or Mono Speakers & Volume Controls
MAC24
Music & Communications Distribution Amplifier
STRUCTURED WIRING by ELAN

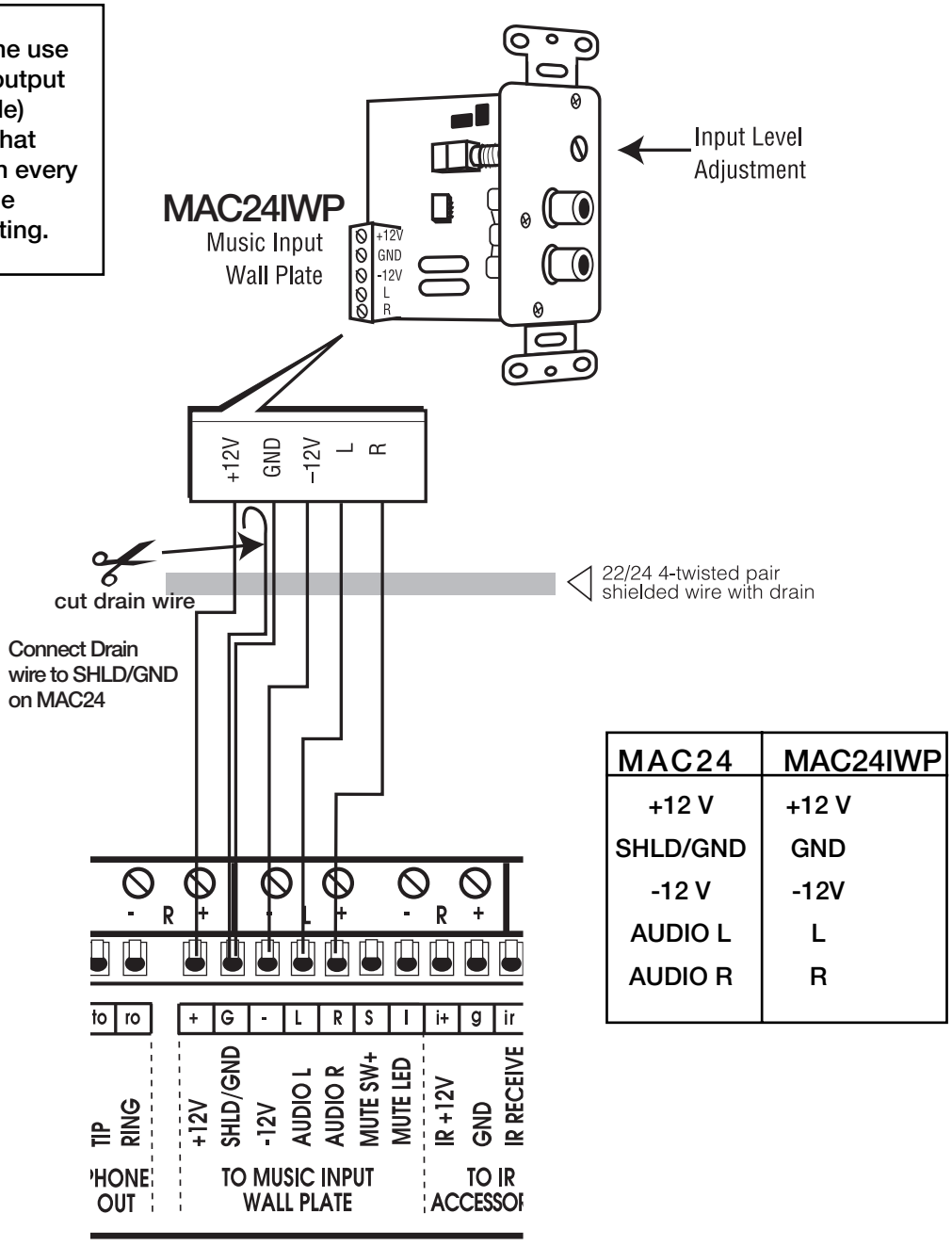
©2004 ELAN Home Systems. All Rights Reserved. 04/04.

Connecting the Music Input Wall Plate to the MAC24

The Music Input Wall Plate is an in-wall preamp that sends the audio from the homeowner's receiver to the MAC24. This is a LINE LEVEL input only (Tape Out).

Do Not Connect Speaker Level Audio to the MAC24IWP as this will damage the unit!

ELAN recommends the use of a FIXED line level output (Tape Out, for example) from the receiver so that music can be heard in every room regardless of the receiver's volume setting.



MAC24	MAC24IWP
+12 V	+12 V
SHLD/GND	GND
-12 V	-12V
AUDIO L	L
AUDIO R	R

©2004 ELAN Home Systems. All Rights Reserved. 04/04.

Determining the Maximum Amount of Speakers and Volume Controls w/ Override That Can Be Connected to the MAC24.

The following tables assume:

1. One ELAN MACVSO Stereo Volume Control w/ Override at an impedance match setting of 8X per 8 ohm stereo pair.
2. One ELAN MACVMO Mono Volume Control w/ Override at an impedance match setting of 16X per 8 ohm per mono speaker.
3. All mono speakers are distributed evenly between the MAC24's mono speaker connections.

Number of 8 Ohm Stereo Speaker Pairs Connected to the MAC24	Maximum Number of 8 Ohm MONO Speakers Allowed
0	24
1	20
2	16
3	12
4	8
5	4
6	0

Failure to comply with the Maximum Speaker and Override Volume Control Specifications may cause damage to the amplifier and will VOID the manufacturer's warranty.

Based on the same assumptions, the table below indicates the combinations of Stereo and Mono speakers that can be connected to the MAC24 when using ***4 or 6 Ohm speakers.***

Number 4 or 6 Ohm Stereo Speaker Pairs Connected to the MAC24	Maximum Number of 8 Ohm MONO Speakers Allowed
0	12
1	9
2	6
3	3
4	0

All Stereo Volume Controls (MACVSO) must be set to 8X Impedance Match.

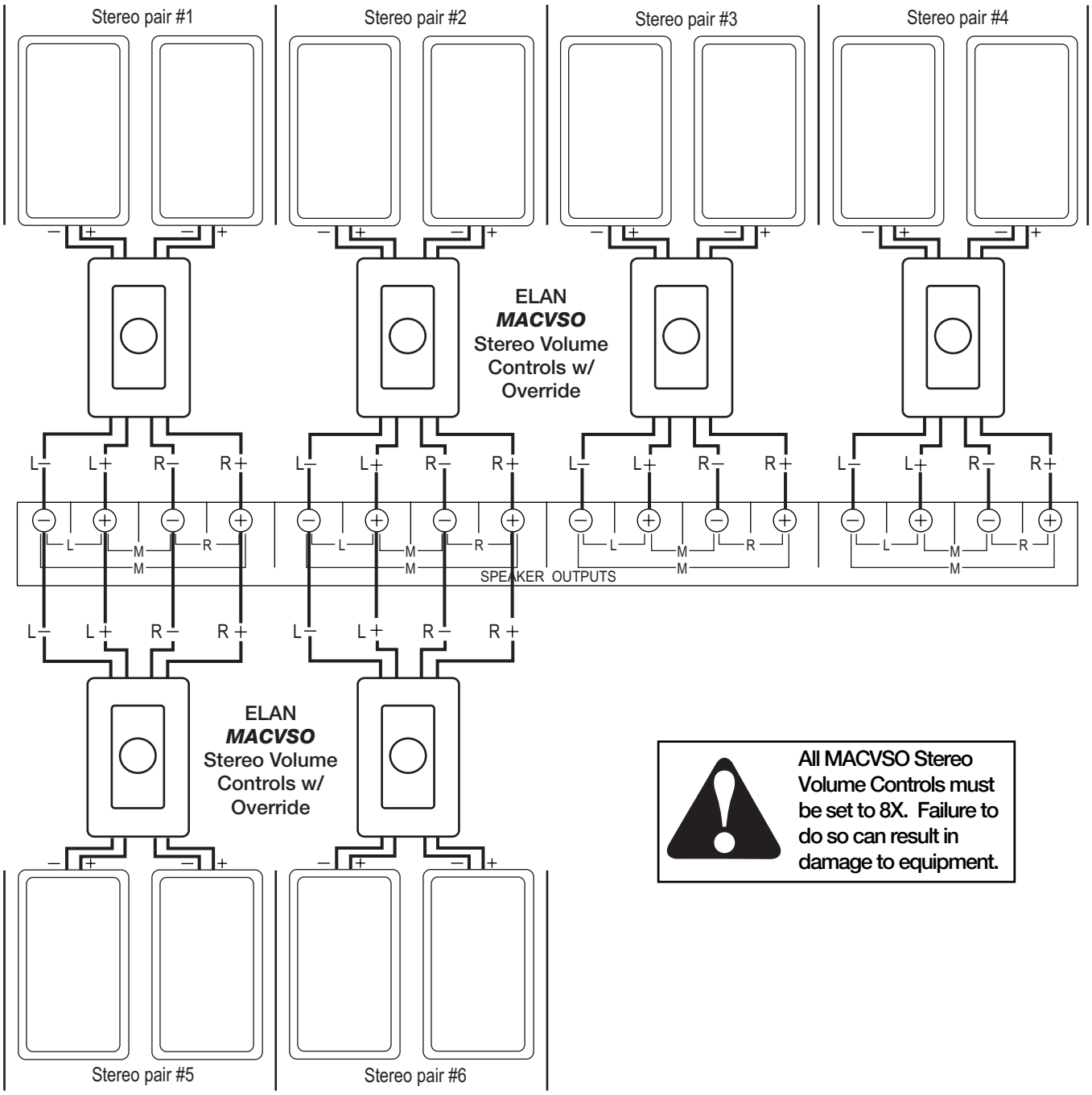
All Mono Volume Controls (MACVMO) must be set to 16X Impedance Match.

A maximum of 12 MACVSO and/or MACVMO Volume Controls with override can be connected to the MAC24 without the use of an external +12VDC power supply. See **Adding Additional Volume Controls** p. 22.

The MAC24 is designed specifically for use with ELAN MACVSO and MACVMO Volume Controls ONLY! Failure to comply with this specification may cause damage to the amplifier and will VOID the manufacturer's warranty.

©2004 ELAN Home Systems. All Rights Reserved. 04/04.

Stereo Speaker Pair Connections (MAX 6 Stereo Pairs rated at 8 Ohms per speaker)

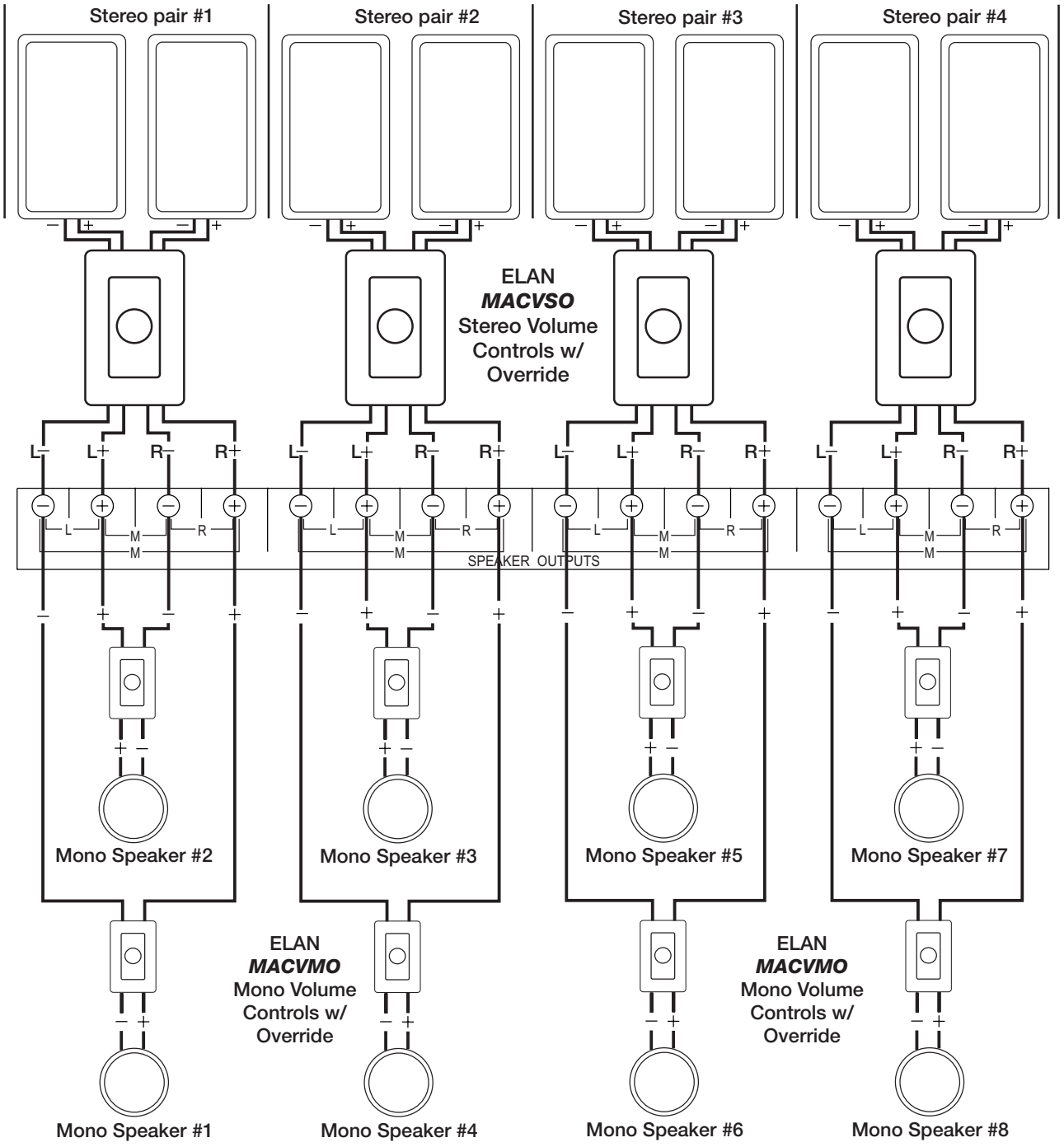


All MACVSO Stereo Volume Controls must be set to 8X. Failure to do so can result in damage to equipment.

©2004 ELAN Home Systems. All Rights Reserved. 04/04.

Combination Stereo & Mono Speaker Connections

Shown: 4 Stereo pair & 8 Mono speakers. All speakers rated at 8 Ohms.



All MACVSO Stereo Volume Controls must be set to 8X. Failure to do so can result in damage to equipment.

All MACVMO Mono Volume Controls must be set to 16X. Failure to do so can result in damage to equipment.

©2004 ELAN Home Systems. All Rights Reserved. 04/04.

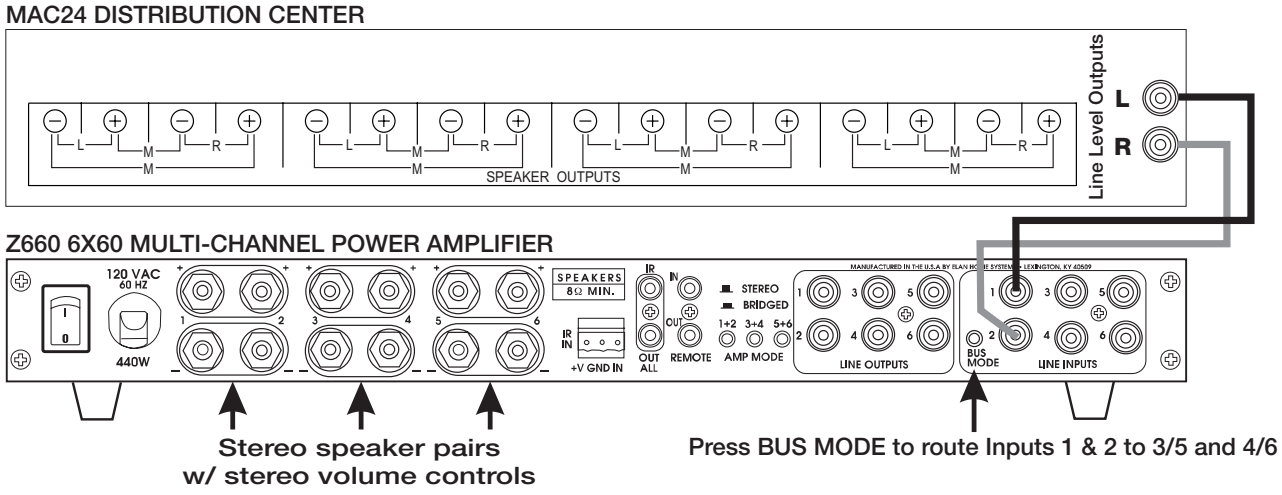
Using the MAC24 Line Level Outputs to Add More Rooms of Music

The MAC24 has Line Level Preamp Outputs in order to add amplification for additional speakers should the system require more than the specified maximum (24 Mono speakers or 6 pair of stereo speakers).

When adding Stereo Speaker Pairs only:

1. Connect an RCA stereo patch cable from the LINE LEVEL OUTPUTS of the MAC24 to the LINE INPUTS 1 and 2 of an ELAN Z660 Multi-Channel Power Amplifier.
2. Press the BUS MODE button on the Z660. This automatically routes Inputs 1 & 2 to all other Z660 Inputs. No other patch cables are necessary!
3. Connect each pair of additional speakers to a MACVSO Stereo Volume Control w/ Override.
4. Connect the Volume Controls to the Z660.
5. Connect the MACVSO's VC+ and VC- terminals in parallel with all other VC+ and VC- wires of the Volume Controls connected to the MAC24.

See **Volume Control Override Connections** p. 19.



Make sure to use the correct MACVSO Impedance Match settings. See Z660 Installation Manual for details.

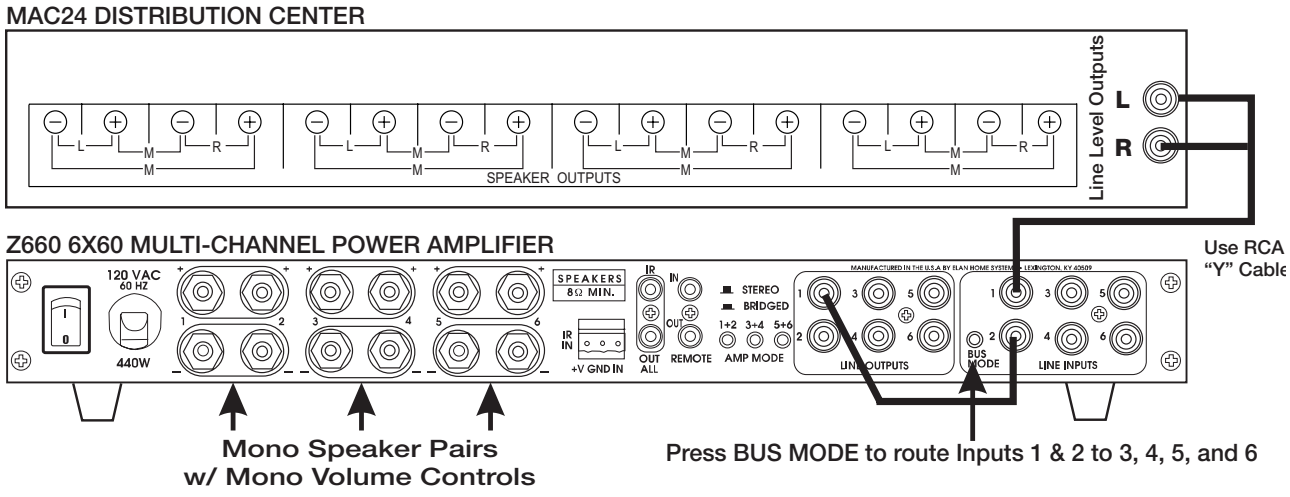
©2004 ELAN Home Systems. All Rights Reserved. 04/04.

Using the MAC24 Line Level Outputs to Add More Rooms of Music (continued)

When adding Mono Speakers only:

1. Connect an RCA "Y" cable from the LINE LEVEL Outputs of the MAC24 to LINE INPUT 1 of an ELAN Z660 Multi-Channel Power Amplifier.
2. Connect a single RCA (Mono) patch cable from LINE LEVEL OUTPUT 1 to LINE LEVEL INPUT 2.
3. Press the BUS MODE button on the Z660. This automatically routes Inputs 1& 2 to all other Z660 Inputs. No other patch cables are necessary!
4. Connect each pair of additional Mono speakers to a MACVSO Stereo Volume Control w/Override.
5. Connect the Volume Controls to the Z660 Amplifier.
6. Connect the MACVSO's VC+ and VC- terminals in parallel with all other VC+ and VC- wires of the Volume Controls connected to the MAC24.

See **Volume Control Connections** p. 19.



Make sure to use the correct MACVMO Impedance Match settings. See Z660 Installation Manual for details.

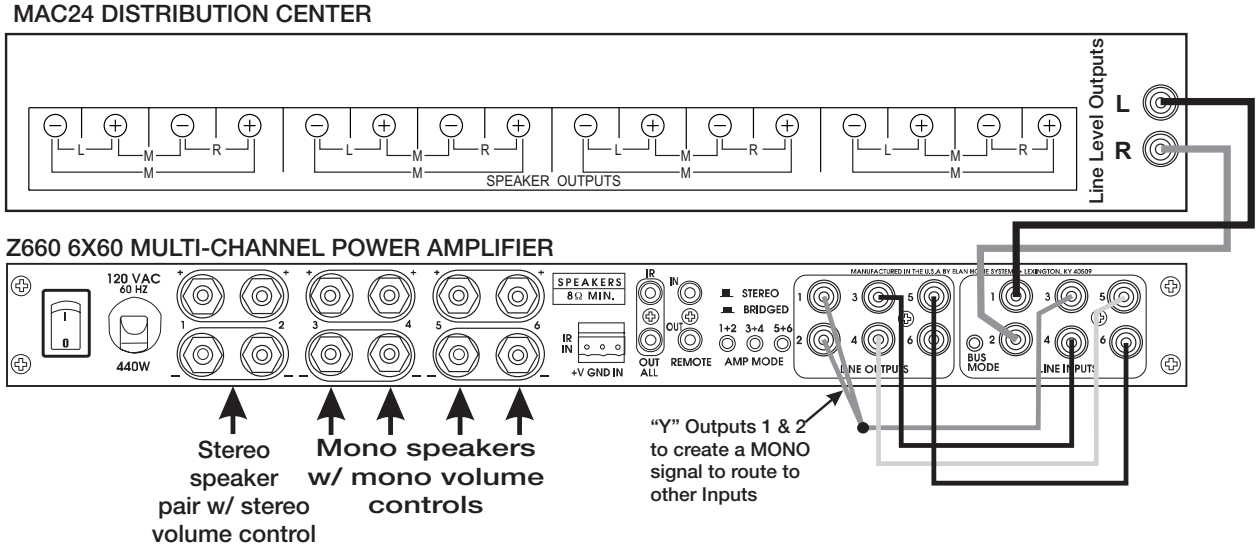
©2004 ELAN Home Systems. All Rights Reserved. 04/04.

Using the MAC24 Line Level Outputs to Add More Rooms of Music (continued)

When adding a combination of Stereo & Mono Speakers:

1. Connect an RCA stereo patch cable from the LINE LEVEL OUTPUTS of the MAC24 to LINE INPUTS 1 & 2 of an ELAN Z660 Multi-channel Power Amplifier.
2. To create additional stereo channels, connect a stereo RCA patch cable from the Z660's LINE OUTPUTS 1 & 2 to LINE INPUTS 3 & 4.
3. To create mono channels, "Y" LINE OUTPUTS 1 & 2 (or 3 & 4) to additional Z660 INPUTS. Use single RCA (mono) patch cables to go from a mono OUTPUT to a mono INPUT.
4. Connect stereo speaker pairs to MACVSO Stereo Volume Controls w/Override.
5. Connect MACVSOs to Z660 stereo speaker OUT PUTS.
6. Connect mono speakers to MACVMO Mono Volume Controls w/Override.
7. Connect MACVMOs to Z660 mono speaker OUT PUTS.
8. Connect the VC+ and VC- terminals of each Volume Control in parallel with all other VC+ and VC- wires of the Volume Controls connected to the MAC24.

See **Volume Control Connections** p. 19.



Make sure to use the correct MACVSO/ MACVMO Impedance Match settings. See Z660 Installation Manual for details.

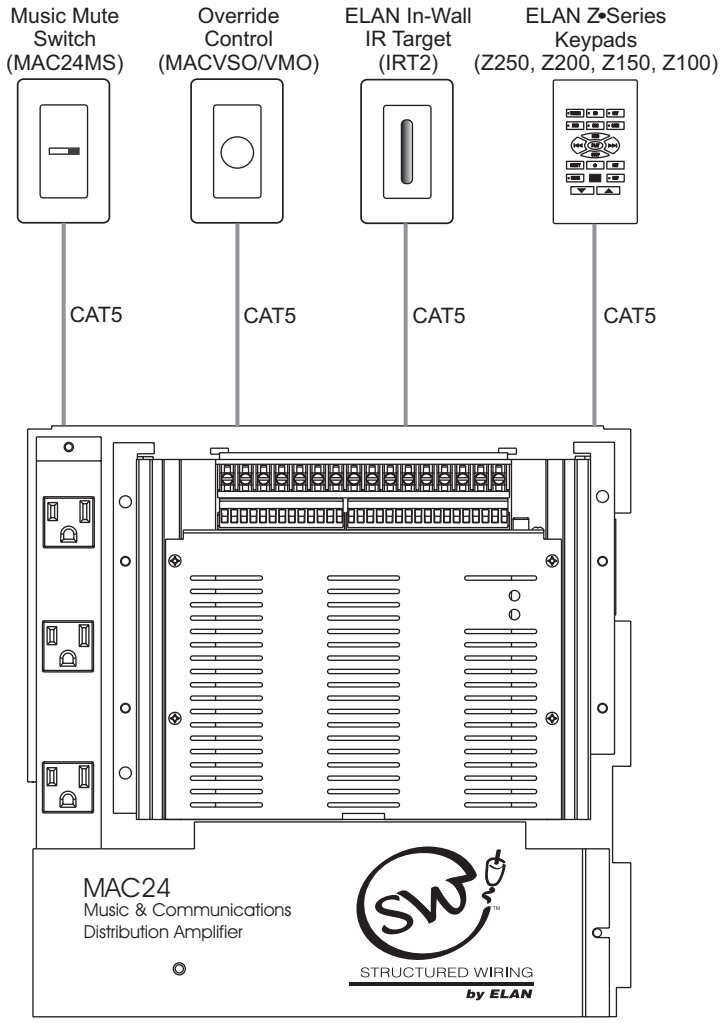
©2004 ELAN Home Systems. All Rights Reserved. 04/04.

3. Control Device Connections

This section details the various Control Device connections possible with the MAC24. These connections include:

- **Music Mute Switch** (MAC24MS)
- **Volume Control Override Connections**
- **IR Receivers and Emitters**
- **ELAN Z Series Keypads** (Z250, Z200, Z150, Z100)

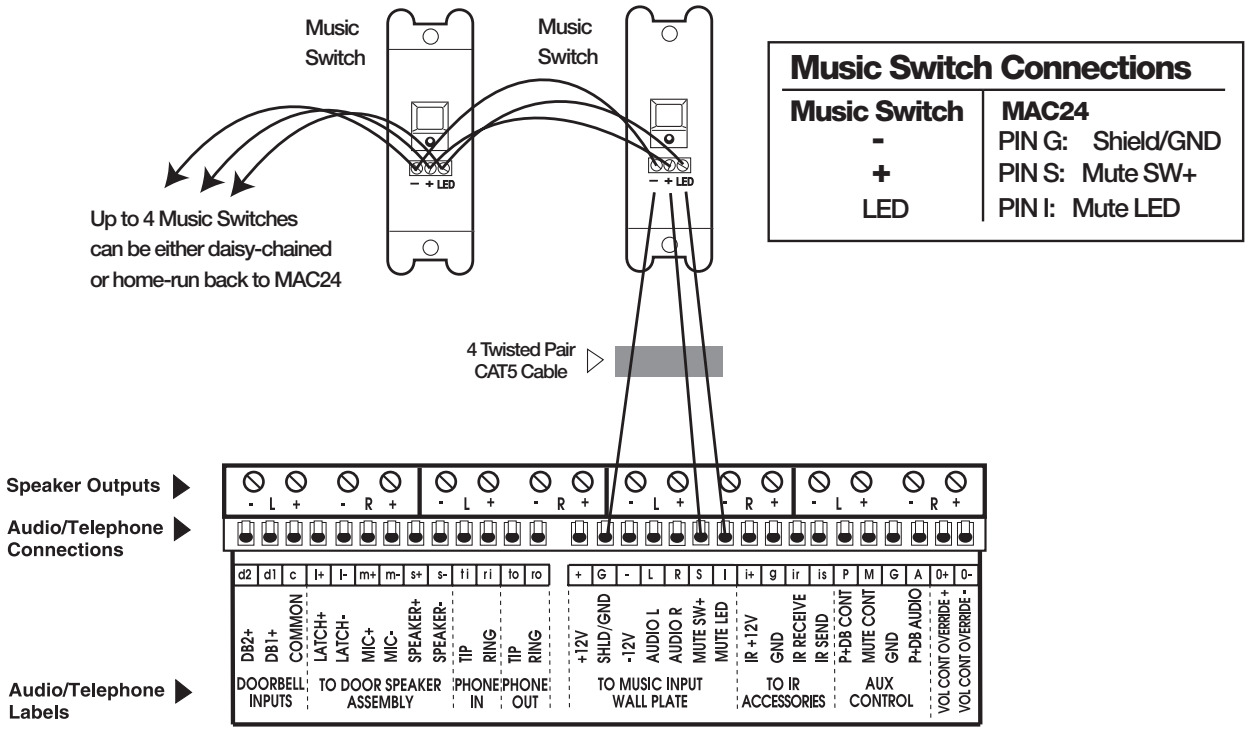
MAC24 Control Wire Runs



©2004 ELAN Home Systems. All Rights Reserved. 04/04.

Connecting the Music Switch (MAC24MS) to the MAC24 (Optional)

Up to 4 Music Switches can be Connected to the MAC24

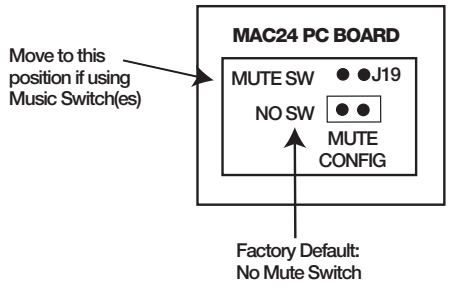

Music Switch
Music Switch
- + LED
- + LED
Up to 4 Music Switches can be either daisy-chained or home-run back to MAC24
4 Twisted Pair CAT5 Cable
Speaker Outputs
Audio/Telephone Connections
Audio/Telephone Labels
d2 d1 c I+ I- m+ m- s+ s- ti ri to ro
+ G - L R S I i+ g ir is P M G A 0+ 0-
DB2+ DB1+ COMMON
LATCH+ LATCH- MIC+ MIC- SPEAKER+ SPEAKER-
TIP RING TIP RING
+12V SHLD/GND -12V AUDIO L AUDIO R MUTE SW+ MUTE LED
IR +12V GND IR RECEIVE IR SEND
P+DB CONT MUTE CONT GND P+DB AUDIO
VOL CONT OVERRIDE + VOL CONT OVERRIDE -
DOORBELL INPUTS
TO DOOR SPEAKER ASSEMBLY
PHONE IN
PHONE OUT
TO MUSIC INPUT WALL PLATE
TO IR ACCESSORIES
AUX CONTROL

Music Switch Connections

Music Switch	MAC24
-	PIN G: Shield/GND
+	PIN S: Mute SW+
LED	PIN I: Mute LED

NOTE:

If using Music Switches on the system, it will be necessary to reposition a shunt that is located on the MAC24's PC Board. To access the shunt, the top cover of the MAC24 must be removed. Make sure you are fully grounded before removing the top cover or touch the PC Board. A grounding wrist strap connected to an earth ground is recommended. **See p. 32 "Gaining Access to the MAC24 PB Board".**



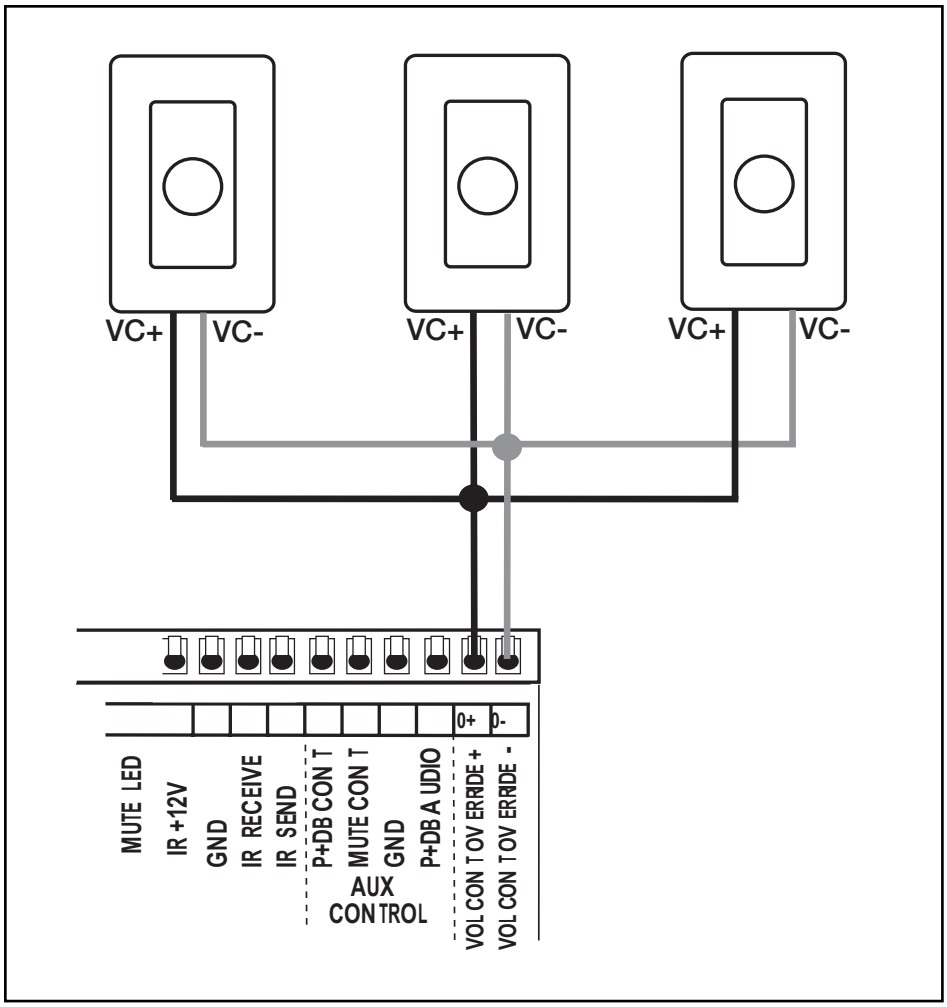
©2004 ELAN Home Systems. All Rights Reserved. 04/04.

Volume Control Override Connections

When hard wiring Volume Override Connections:

1. Connect all VC+ and VC- wires in parallel as shown below.
2. Connect VOL CONTROL OVERRIDE+ from MAC24 to VC+ of Volume Controls.
3. Connect VOL CONTROL OVERRIDE- from MAC24 to VC- of Volume Controls.

A maximum of 12 MACVSOs and/or MACVMOs can be connected if using this method. When connecting more than 12 VCs, See "**Adding Additional Volume Controls**" p. 22.



©2004 ELAN Home Systems. All Rights Reserved. 04/04.

Volume Control Override Connections (continued)

When using an ELAN SW TH48 Telephone Expansion Hub and a TIA T568A Standard Self-Terminated Cable:

1. Reference the diagram below for PIN configuration.

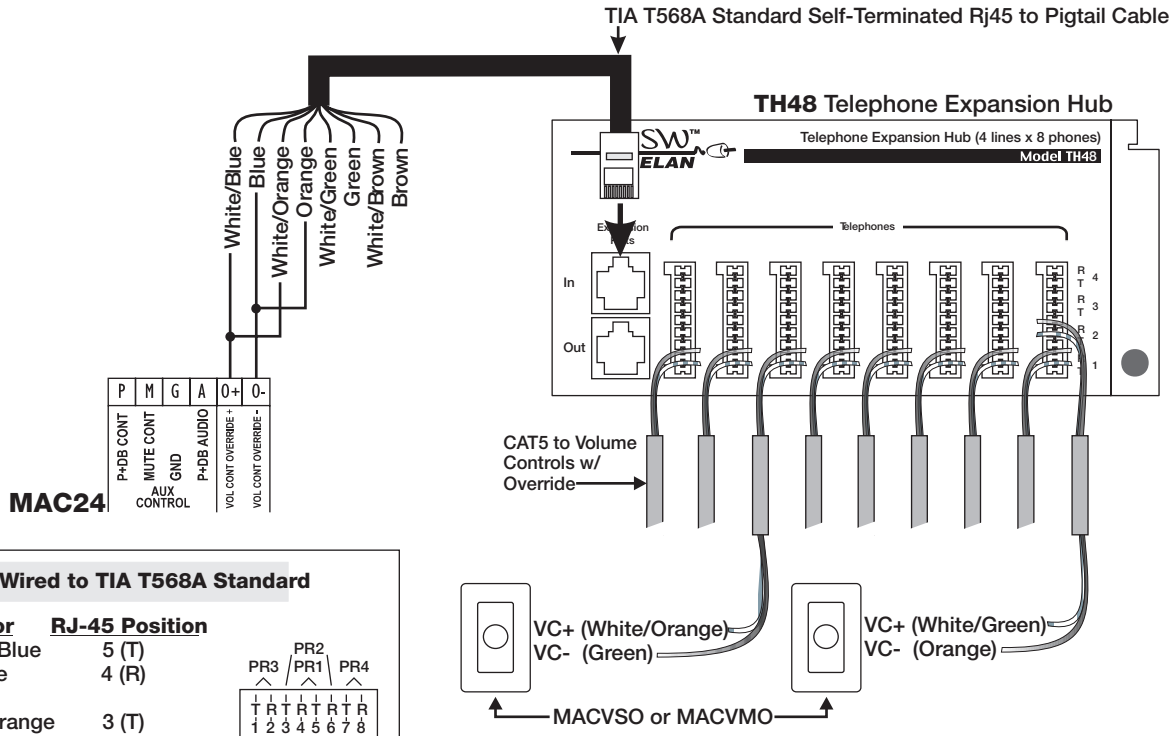
2. Plug RJ45 end of T568A pigtail into RJ45 IN jack on the TH48 Telephone Expansion Hub.

3. If wiring up to 8 Volume Controls:
   a. Connect WHITE/BLUE to VOL CONTROL OVERRIDE+ and BLUE to VOL CONTROL OVERRIDE- as shown below.
   b. Each Position 1 punchdown location (WHITE/ORANGE & GREEN) of theTH48 is active.

4. If wiring 9 to 12 Volume Controls:
   a. Connect WHITE/ORANGE to WHITE/BLUE.
   b. Connect these wires to VOL CONTROL OVERRIDE+ as shown below.
   c. Connect ORANGE to BLUE.
   d. Connect these wires to VOL CONTROL OVERRIDE- as shown below.
   e. Each Position 1 punchdown location WHITE/ORANGE & GREEN) is active. Each Position 2 punchdown location (WHITE/GREEN & ORANGE) is active.

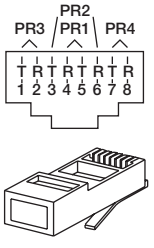
5. Do not connect more than 4 Volume Controls on Position 2.

If Using a TIA T568A Standard Self-Terminated Cable



RJ-45 Wired to TIA T568A Standard

	Color	RJ-45 Position
Pair 1	White/Blue	5 (T)
	Blue	4 (R)
Pair 2	White/Orange	3 (T)
	Orange	6 (R)
Pair 3	White/Green	1 (T)
	Green	2 (R)
Pair 4	White/Brown	7 (T)
	Brown	8 (R)



©2004 ELAN Home Systems. All Rights Reserved. 04/04.

Volume Control Override Connections (continued)

When using an ELAN C45P RJ45 to Pigtail Cable:

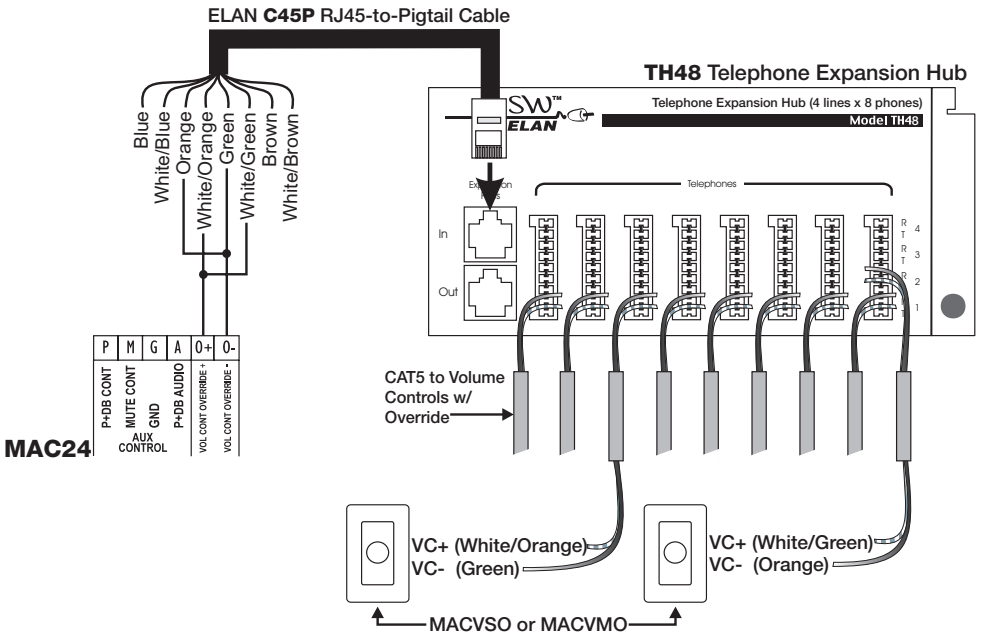
1. Plug RJ45 end of C45P pigtail into RJ45 IN jack on TH48 Telephone Expansion Hub.

2. If wiring up to 8 Volume Controls:
   a. Connect WHITE/ORANGE to VOL CONTROL OVERRIDE + and GREEN to VOL CONTROL OVERRIDE as shown below.
   b. Each Position 1 punchdown location (WHITE/ORANGE & GREEN) of the TH48 is active.

3. If wiring 9 to 12 Volume Controls:
   a. Connect WHITE/ORANGE to WHITE/GREEN.
   b. Connect these wires to VOL CONTROL OVERRIDE+ as shown below.
   c. Connect ORANGE to GREEN.
   d. Connect these wires to VOL CONTROL OVERRIDE- as shown below.
   e. Each Position 1 punchdown location WHITE/ORANGE & GREEN) is active. Each Position 2 punchdown location (WHITE/GREEN & ORANGE) is active.

4. Do not connect more than 4 Volume Controls on Position 2.

If Using an ELAN C45P RJ45 to Pigtails Cable

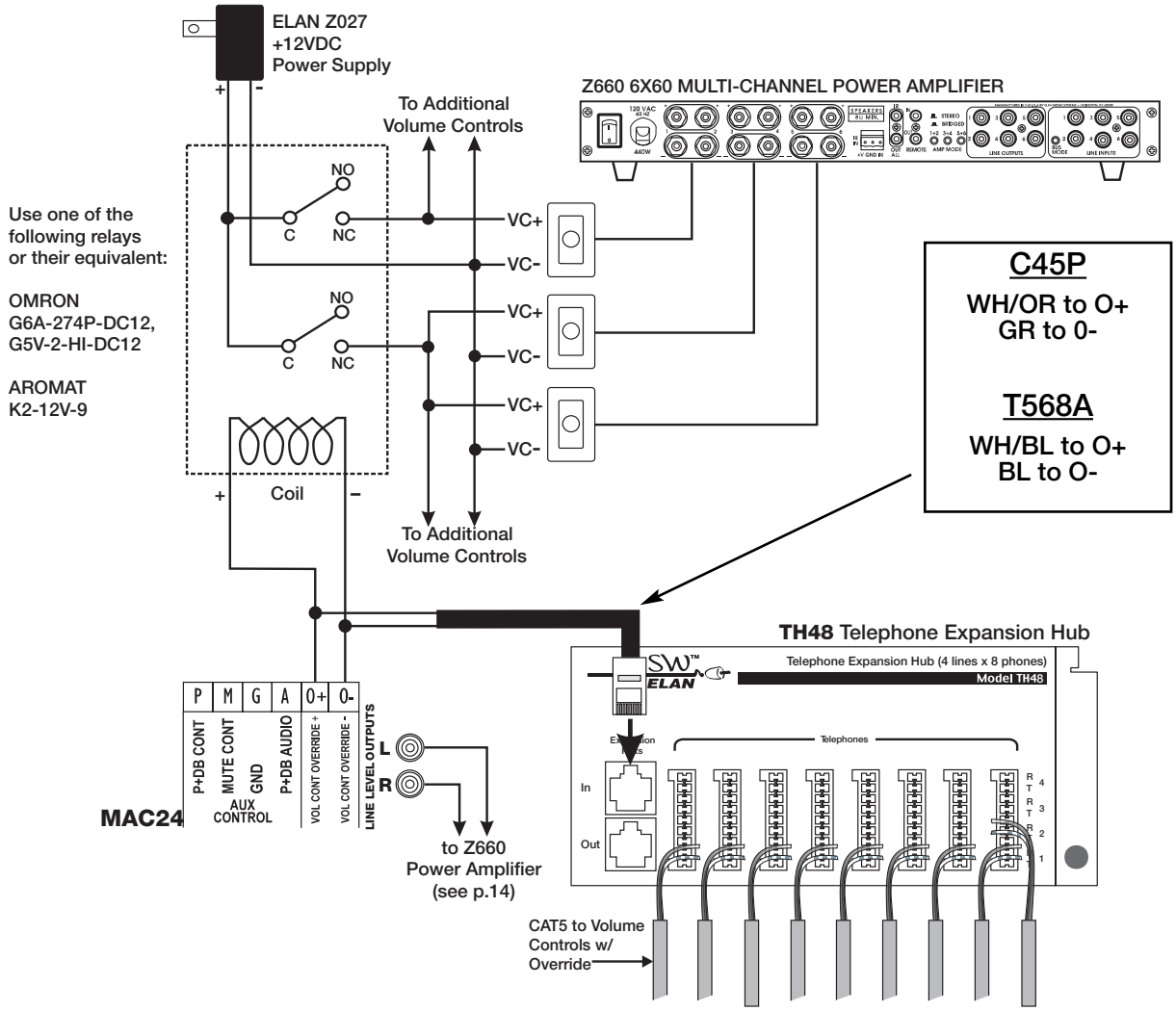


©2004 ELAN Home Systems. All Rights Reserved. 04/04.

Volume Control Override Connections (continued)

Adding Additional Volume Controls:

1. If more than 12 Volume Controls with Override are to be installed, this diagram shows how an external power supply can be used to add additionalMACVMOs and/or MACVSOs.
2. This application requires the use of a DPDT (Double Pull Double Throw) external Relay.



Using this relay circuit limits the number of Stereo pairs connected to the MAC24 to a maximum of 3. The circuit, however, can handle any number of Volume Controls.
3 MACVSOs and 8 MACVMOs Maximum when using this Relay Circuit!

©2004 ELAN Home Systems. All Rights Reserved. 04/04.

IR Receiver Connections

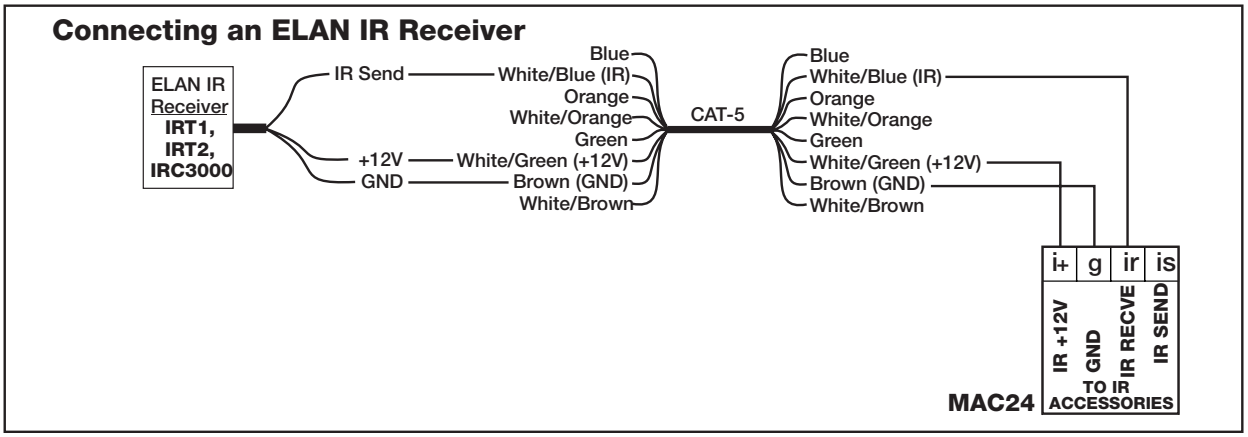
The MAC24 has a built-in IR engine that allows connectivity of multiple IR receivers. This engine can pass IR to multiple emitters in order to control multiple system sources.

To connect an ELAN IR receiver to the MAC24:

1. Connect IR Receiver to CAT5 as shown below.
2. Connect CAT5 to MAC24 as shown below.

It may be convenient to use ELAN standard color codes when making these connections:

IR = WHITE/BLUE
+12V = WHITE/GREEN
GND = BROWN

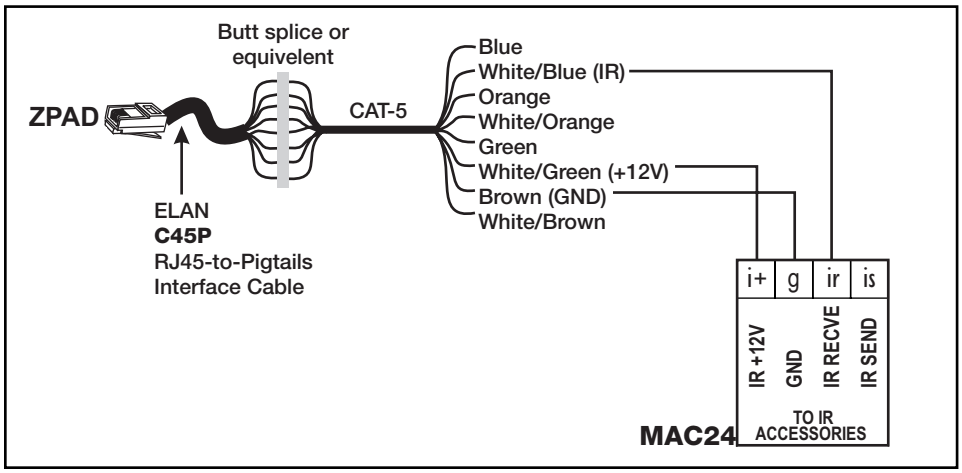


Connecting an ELAN Keypad (Z250, Z200, Z100/150)

To connect an ELAN Keypad to the MAC24:

1. Connect ELAN C45P RJ45 to Pigtail to the MAC24 as shown below.
2. Plug RJ45 into ZPAD.

MAXIMUM NUMBER OF KEYPADS ON THIS CIRCUIT = 1!



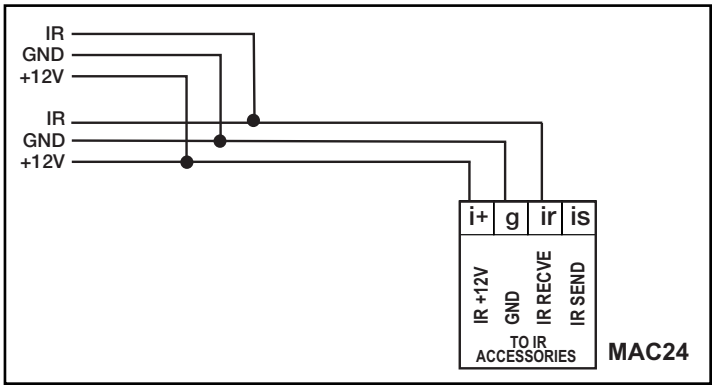
©2004 ELAN Home Systems. All Rights Reserved. 04/04.

Connecting Multiple IR Receivers

To connect multiple IR Receivers to the MAC24:

Connect IR, GND, and 12VDC in parallel as shown below.

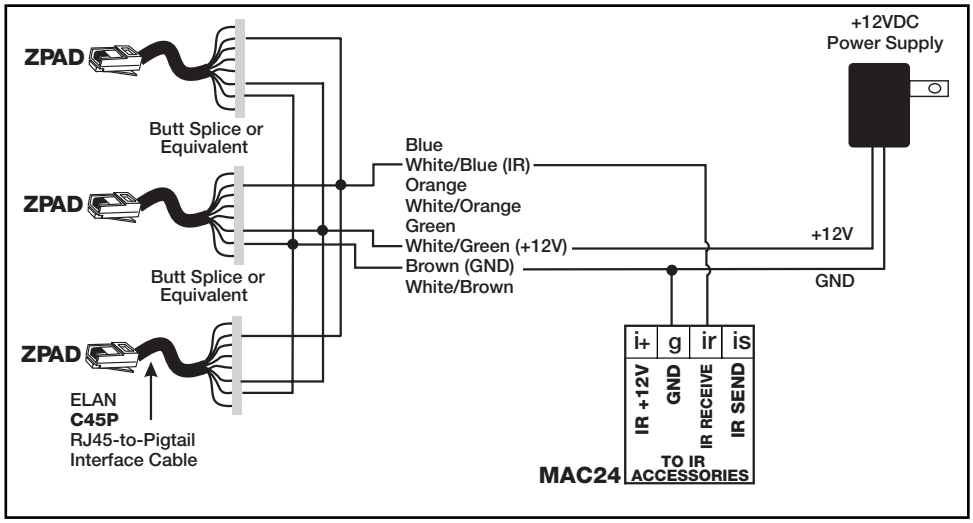
MAXIMUM NUMBER OF IR RECEIVERS ON THIS CIRCUIT = 4



Connecting Multiple ELAN Keypads using a 12VDC Power Supply

To connect multiple ELAN Keypads to the MAC24:

1. Using an ELAN C45P RJ45 to Pigtail, connect IR, GND, and +12VDC between all keypads in parallel as shown below.
2. Connect the combined IR connections from the keypads to IR RECEIVE on the MAC24.
3. Connect the combined GND connections from the keypads to the GND on the MAC24.
4. Connect these same GND wires in parallel to GND of the 12V Power Supply.
5. Connect the combined +12VDC to +12V of the external power supply as shown below.



NOTE:
A 12VDC Regulated Power Supply of the appropriate amperage is required when connecting more than 1 keypad to the MAC24.

Each Keypad Requires Aproximately 50 mA.

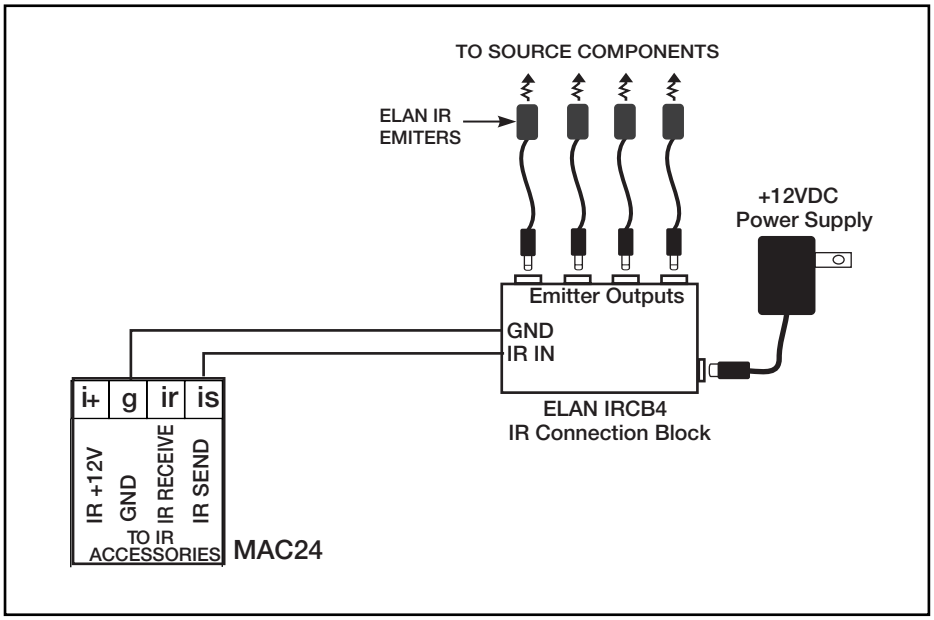
Example:
8 Keypads X 50 mA =400 mA

©2004 ELAN Home Systems. All Rights Reserved. 04/04.

Connecting IR Emitters

To connect IR Emitters to the MAC24:

1. Connect IR SEND (is) and GND from the MAC24 to an ELAN IRCB4 as shown below.
2. Plug IR mini-emitters into EMITTER OUTPUTS of the IRCB4.
3. Attach Emitters to source components.

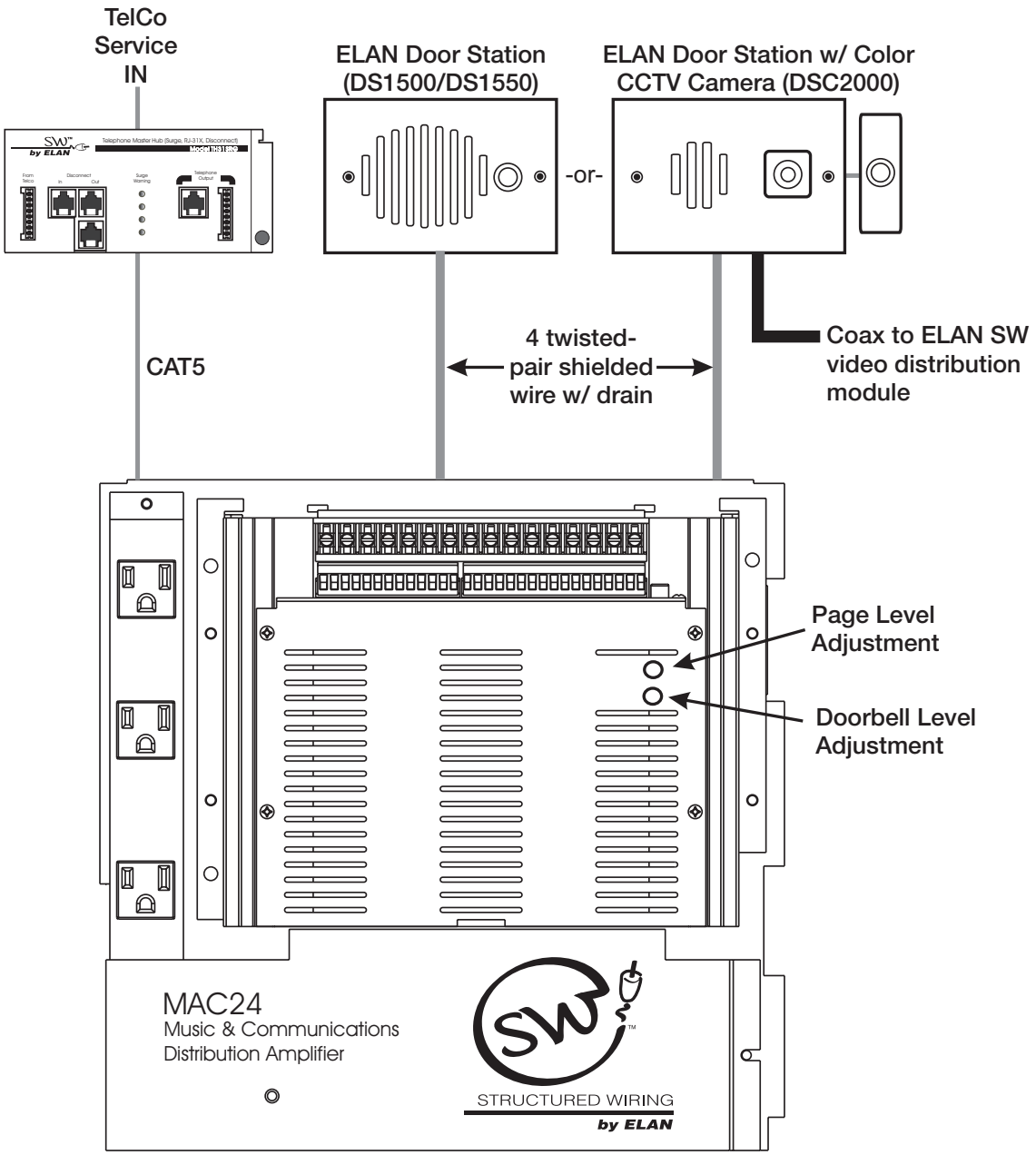


©2004 ELAN Home Systems. All Rights Reserved. 04/04.

4. Telephone & Door Station Connections

This section details the procedures necessary to enable the Communication features of the MAC24. These connections include:

- **Telephone Service**
- **ELAN Door Stations (DSC2000/DS1500/DS1550)**



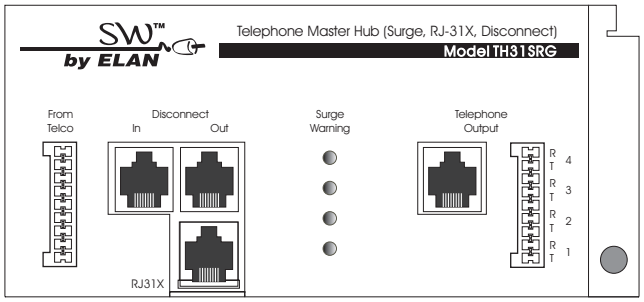
©2004 ELAN Home Systems. All Rights Reserved. 04/04.

Connecting Telephone Service to the System

The TH31SRG Telephone Master Hub

The TH31SRG is an ELAN SW grid-mount module that provides surge protection for up to 4 incoming telephone lines as well as offering an RG31X jack for security systems and a Quick Disconnect. Telephone Outputs (RJ45 and 110 punchdown) provide easy expansion capabilities. The TH31SRG's jack are wired to a TIA T568A standard.

TH31SRG Telephone Master Hub



ELAN strongly recommends the use of two TH31SRG Telephone Master Hubs for every MAC24 installation. Using two TH31SRGs provides the homeowner with:

- **Surge Protection** on both the MAC24 Telephone Input & Output. This helps protect the MAC24 from surge ingress that can come from the incoming telephone line or from the tele phone extensions.
- A **Quick Disconnect** that, in the event of failure,removes the MAC24 from the telephone loop without disabling the homeowner's tele phones.

The reason that two TH31SRGs are required to obtain these safeguards is that the RJ31X jack on the TH31SRG is wired in front of the surge protection circuitry. Using only one TH31SRG would provide surge protection only on Phone IN and would disable telephone service if the Quick Disconnect jumper cable is removed.

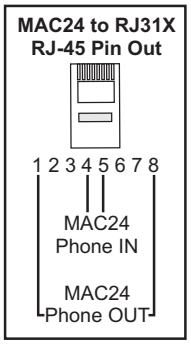
IF THERE IS A SECURITY SYSTEM IN THE HOME, TWO TH31SRGs MUST BE USED.

Whether it's an ELAN TH31SRG or another manufacturer's device, TELEPHONE LINE SURGE PROTECTION SHOULD ALWAYS BE INSTALLED ON THE MAC24.

TH31SRG Connections

The "From Telco" punchdown connector on the TH31SRG automatically routes Line 1 (Blue pair) to the RJ31X jack. This would be the ELAN line.

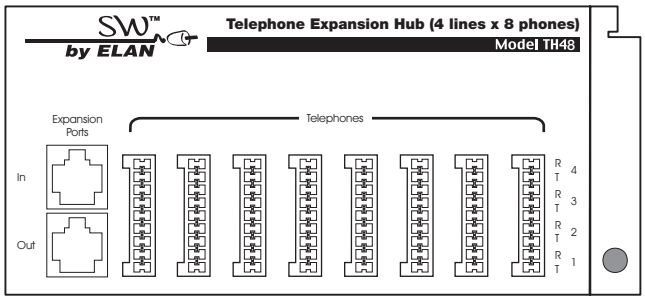
The center pins on the RJ31X jack are connected to the MAC24 Phone IN. The outer pins of the RJ31X jack connect to the MAC24 Phone OUT.



TH48 Telephone Expansion Hub

The ELAN TH48 Telephone Expansion Hub is used to distribute the surge-protected C.O. Lines coming from the TH31SRG to 8 telephone wall plates. If more than 8 extensions are needed, additional TH48s can be added to the system. The Expansion Ports on the TH48 make this easy.

TH48 Telephone Expansion Hub



Modems, Fax Machines, Satellite & Cable

To ensure problem-free operation, any device other than a telephone that uses the phone line to dial out or receive data should be connected 'in front of' the MAC24. Such devices include:

- Modems
- Fax Machines
- Answering Machines
- Satellite & Cable Boxes
- Digital Music Servers

ELAN recommends the use of Dual Telephone Wall Plates with the top jack wired for telephone use and the bottom jack wired in front of the MAC24 for use with these devices

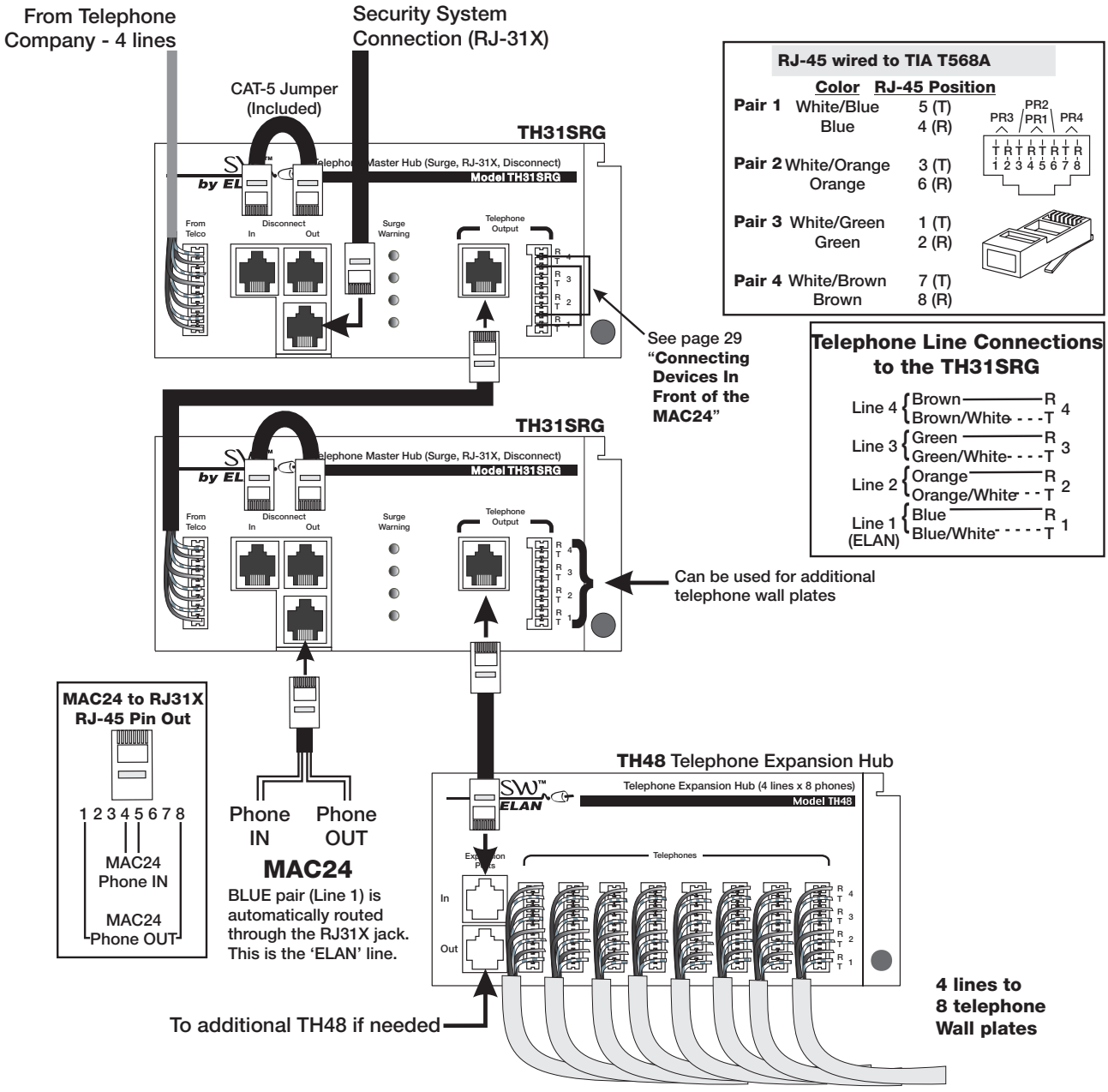
See "**Connecting Devices In Front Of The MAC24**" on page 29.

©2004 ELAN Home Systems. All Rights Reserved. 04/04.

Connecting Telephone Service to the System (continued)

The diagram below shows telephone service connections using 2 ELAN TH31SRGs and an ELAN TH48 Telephone Expansion Hub.

IMPORTANT NOTE:
The RJ-45 jacks on the TH31SRG Master Hub and TH48 Expansion Hub are wired to a TIA T568A standard. DO NOT USE ELAN C45P OR C4545 RJ45 INTERCONNECT CABLES WITH THESE DEVICES. The pin-outs for T568A standard self-terminated cables are shown below.


From Telephone Company - 4 lines
Security System Connection (RJ-31X)
CAT-5 Jumper (Included)
TH31SRG
Model TH31SRG
From Telco
Disconnect In Out
Surge Warning
Telephone Output
See page 29 "Connecting Devices In Front of the MAC24"
TH31SRG
Model TH31SRG
Can be used for additional telephone wall plates
RJ-45 wired to TIA T568A
Color RJ-45 Position
Pair 1 White/Blue 5 (T)
Blue 4 (R)
Pair 2 White/Orange 3 (T)
Orange 6 (R)
Pair 3 White/Green 1 (T)
Green 2 (R)
Pair 4 White/Brown 7 (T)
Brown 8 (R)
PR3 PR2 PR1 PR4
T R T R T R T R
1 2 3 4 5 6 7 8
Telephone Line Connections to the TH31SRG
Line 4 Brown R 4
Brown/White T
Line 3 Green R 3
Green/White T
Line 2 Orange R 2
Orange/White T
Line 1 (ELAN) Blue R 1
Blue/White T
MAC24 to RJ31X RJ-45 Pin Out
1 2 3 4 5 6 7 8
MAC24 Phone IN
MAC24 Phone OUT
Phone IN
Phone OUT
MAC24
BLUE pair (Line 1) is automatically routed through the RJ31X jack. This is the 'ELAN' line.
TH48 Telephone Expansion Hub
Telephone Expansion Hub (4 lines x 8 phones)
Model TH48
Telephones
In
Out
To additional TH48 if needed
4 lines to 8 telephone Wall plates

©2004 ELAN Home Systems. All Rights Reserved. 04/04.

Connecting Telephone Service to the System (continued)

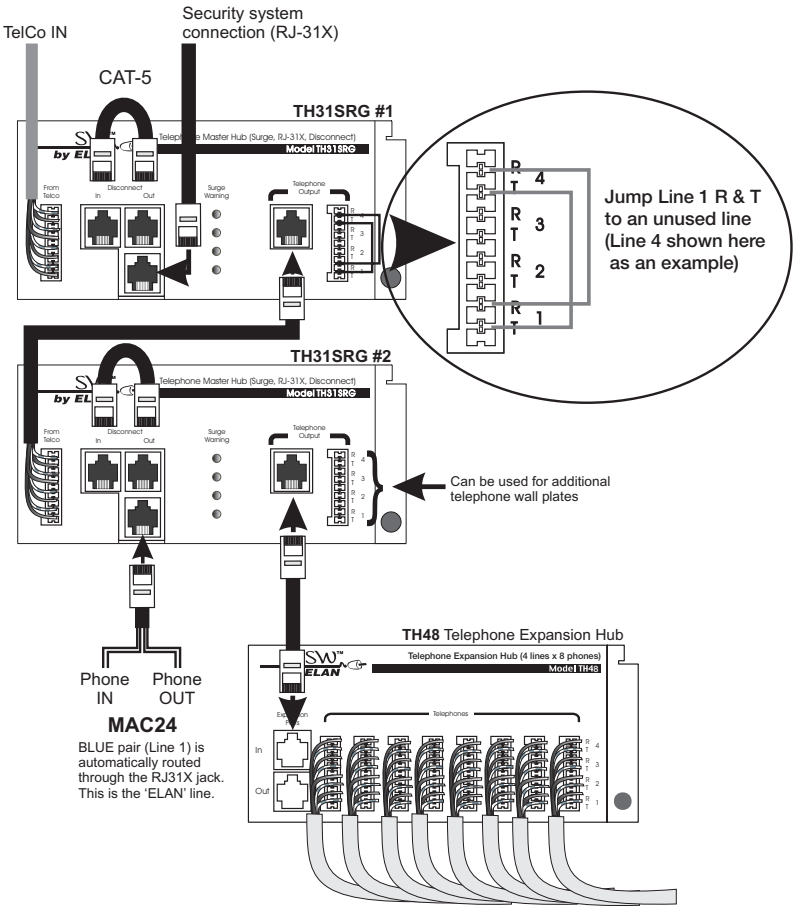
Connecting Devices 'In Front Of' the MAC24

To ensure problem-free operation, devices such as Modems, Fax/Answering Machines and Cable/Satellite boxes should be connected 'in front of' the MAC24.

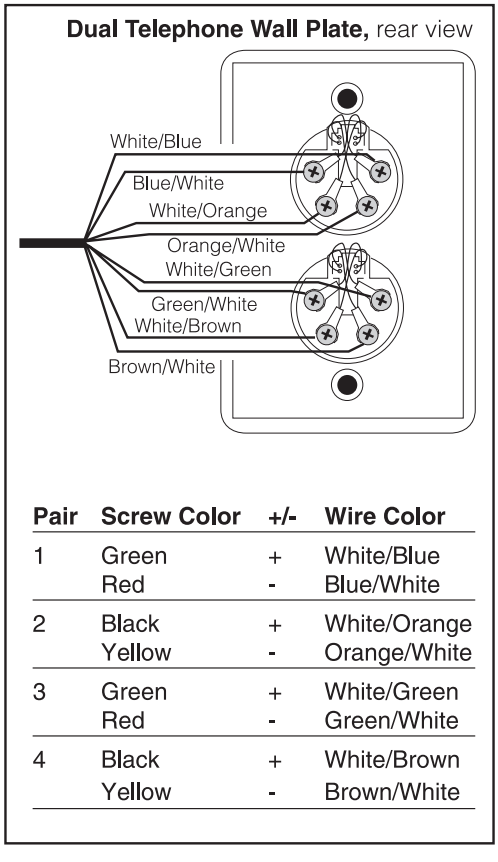
An Easy Way To Do It

The TH31SRG accepts up to 4 phone lines. Since most homes do not have 4 lines, the extra punch-down positions on the TH31SRG Output Punchdown Connector can be used for connecting these devices 'in front of' the MAC24.

In the wiring example shown below, Line 4 is not an active telephone line. By 'jumping' Line 1 to Line 4 any device connected to the bottom jack of a Dual Telephone Wall Plate would be connected directly to the phone line before it hits the MAC24.


TelCo IN
Security system connection (RJ-31X)
CAT-5
TH31SRG #1
Model TH31SRG
TH31SRG #2
Model TH31SRG
Jump Line 1 R & T to an unused line (Line 4 shown here as an example)
Can be used for additional telephone wall plates
TH48 Telephone Expansion Hub
Telephone Expansion Hub (4 lines x 8 phones)
Model TH48
Phone IN
Phone OUT
MAC24
BLUE pair (Line 1) is automatically routed through the RJ31X jack. This is the 'ELAN' line.

4 lines to 8 Dual Telephone Wall Plates



Pair	Screw Color	+/-	Wire Color
1	Green	+	White/Blue
	Red	-	Blue/White
2	Black	+	White/Orange
	Yellow	-	Orange/White
3	Green	+	White/Green
	Red	-	Green/White
4	Black	+	White/Brown
	Yellow	-	Brown/White

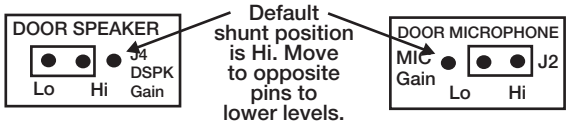
©2004 ELAN Home Systems. All Rights Reserved. 04/04.

Connecting an ELAN DS1500/DS1550/DSC2000 Door Station to the MAC24

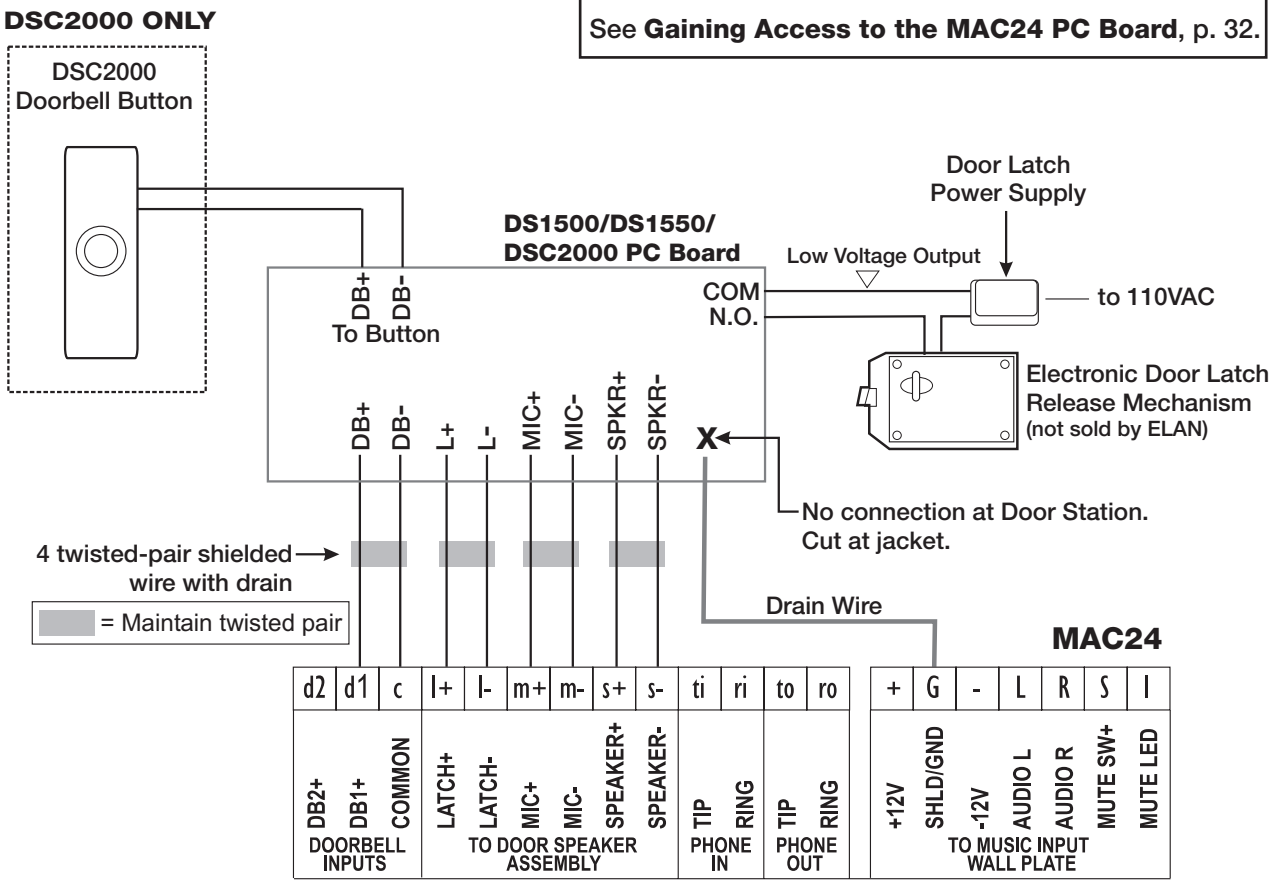
1. Use 22/24 AWG , 8 conductor, 4 twisted pair shielded cable w/ drain between the MAC24 and the Door Station location(s).
2. Connect the Drain wire to SHLD/GND position on the MAC24.
3. Connect DB-/DB+, MIC-/MIC+, SPKR-/SPKR+, and L-/L+ (DS1550 /DCSC2000 only) as shown in the diagram below.
4. Test functions and make adjustments as shown below.

INSTALLATION TIP:

The Door Speaker and Door Microphone levels can be adjusted by repositioning 2 shunts on the MAC24 PC Board. To gain access to the shunts, the top cover of the MAC24 must be removed. Make sure you are fully grounded before removing cover or touching the PC Board. A wrist strap connected to an earth ground is recommended. See p. 32 for cover removal instructions.



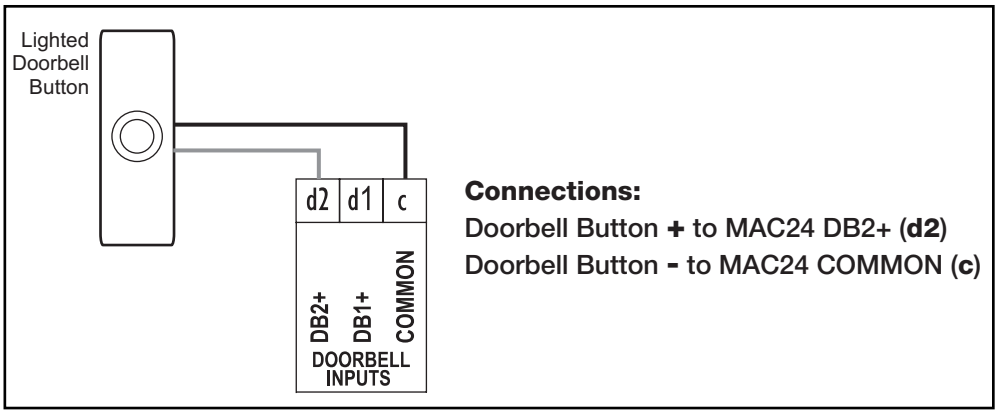
See **Gaining Access to the MAC24 PC Board**, p. 32.



©2004 ELAN Home Systems. All Rights Reserved. 04/04.

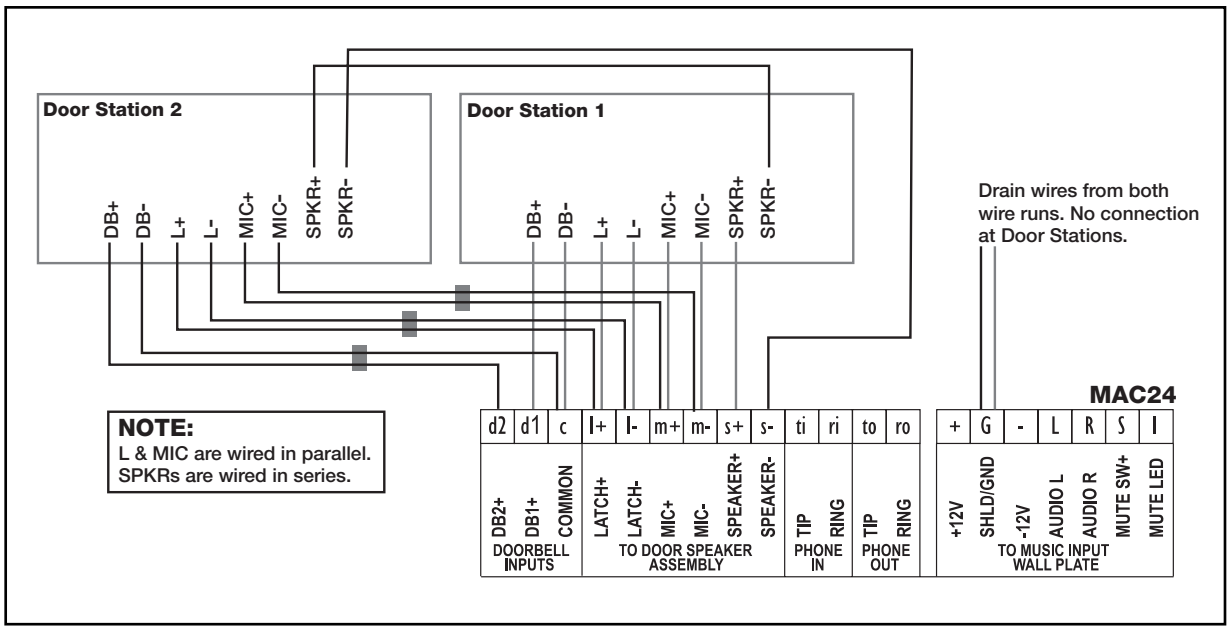
Connecting a Second Doorbell Button

1. The MAC24 provides two distinct door chimes: a 3-note chime for Door Station 1 and a 2-note chime for Door Station 2.
2. Although only 2 conductors are required to con nect a second doorbell button, using a 4 twisted-pair shielded wire with drain permits an upgrade to a second Door Station if desired in the future.



Connecting Two Door Stations

1. The MAC24 provides two distinct door chimes: A 3-note chime for Door Station 1 and a 2-note chime for Door Station 2. It does not, however, provide for independent access to the Door Stations. Pressing #,3 on a telephone will connect you to both Door Stations. Pressing #,3,0 will activate both door latches (if connected).
2. When connecting two ELAN Door Stations the Doorbell, Latch and Microphone connections are wired in parallel; the Speakers are wired in series.



©2004 ELAN Home Systems. All Rights Reserved. 04/04.

5. Troubleshooting

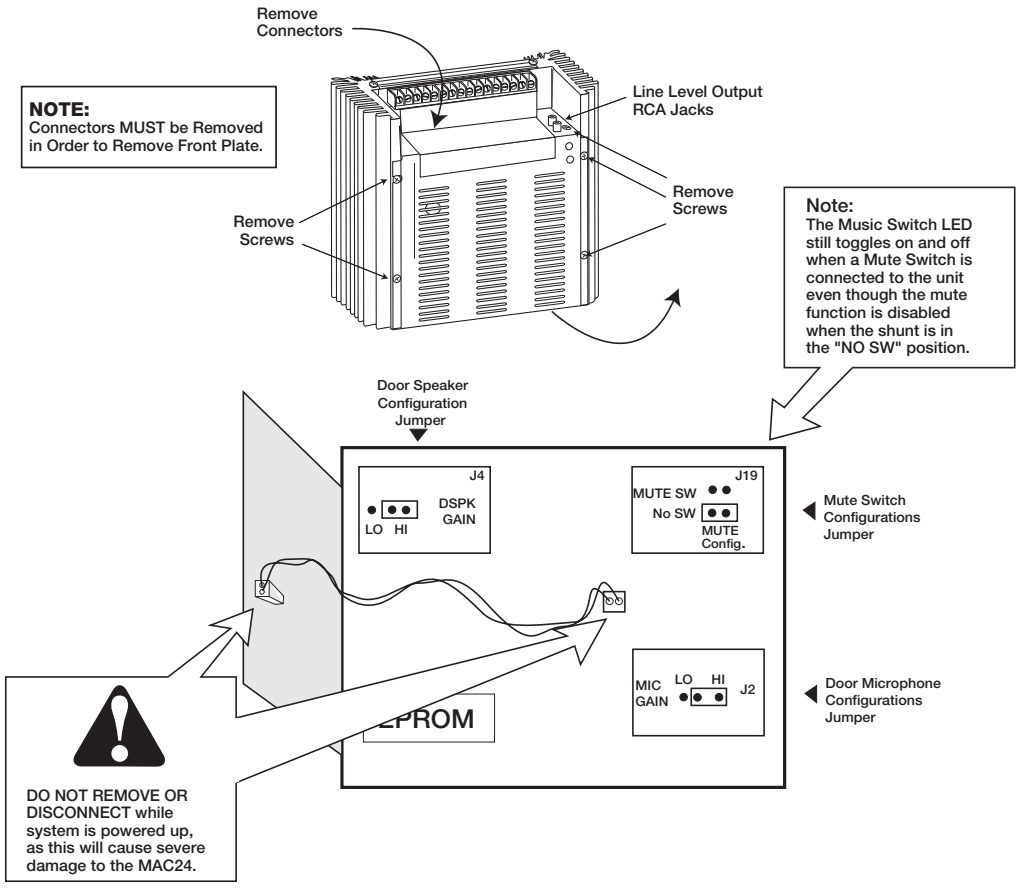
This section details the procedures necessary to troubleshoot problems that may arise when installing or operating the MAC24. After following these procedures to their conclusion, call ELAN Tech Support at (800) 622-3526 ***From the Jobsite*** if unable to remedy the situation. These procedures include:

- **Gaining Access to the MAC24 PC Board**
- **Troubleshooting Audio, Telephone and Door Station**

Gaining Access to the MAC24 PC Board

1. Turn off the AC power to the unit.
2. Remove the screw located to the right of the two Line Level Output jacks.
3. Remove the four screws located on the front cover of the MAC24.
4. Remove both Multi-Pin Connectors.
5. Carefully ease off the MAC24's cover from the bottom, making sure not to bend or break the Line Level Output RCA Jack.

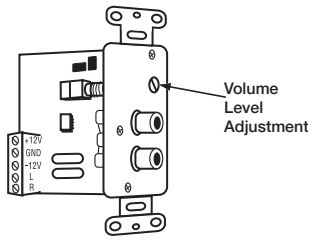
You MUST be fully grounded before accessing the MAC24 PC Board. ELAN recommends the use of a grounding wrist strap anchored to an earth ground.


Remove Connectors
NOTE:
Connectors MUST be Removed in Order to Remove Front Plate.
Line Level Output RCA Jacks
Remove Screws
Remove Screws
Note:
The Music Switch LED still toggles on and off when a Mute Switch is connected to the unit even though the mute function is disabled when the shunt is in the "NO SW" position.
Door Speaker Configuration Jumper
J4
DSPK GAIN
LO HI
J19
MUTE SW
No SW
MUTE Config.
Mute Switch Configurations Jumper
MIC GAIN
LO HI
J2
Door Microphone Configurations Jumper
EPROM
DO NOT REMOVE OR DISCONNECT while system is powered up, as this will cause severe damage to the MAC24.

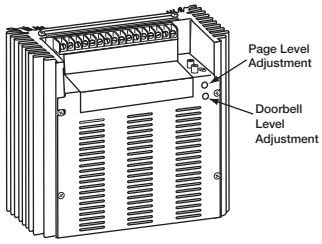
©2004 ELAN Home Systems. All Rights Reserved. 04/04.

MAC24 Audio Distribution Amplifier Reference Voltages

Between MAC24 Pins:	Voltage Should Read:
+12V (+) and SHLD/GND (G)	+12 VDC
-12V (-) and SHLD/GND (G)	-12 VDC
PHONE OUT TIP (to) and PHONE OUT RING (ro)	+24 VDC
VOL CONT OVERRIDE+ (O+) and VOL CONT	12 VDC between O+ and O- only when Page/DB is active O+ will always read +12 VDC to any Ground except O-
DB1+(d1) or DB2+ (d2) and DOORBELL COMMON (C)	+12 VDC
LATCH+ (l+) and LATCH- (l-)	+12 VDC only when #,3,0 is pressed and held
MIC+ (m+) and MIC- (m-)	+5 VDC
SPEAKER+ (s+) AND SPEAKER- (s-)	0 VDC
IR+12V (I+) and GND (g)	+12 VDC
MUTE SW+ (S) and SHLD/GND (G)	+4.75 VDC

Symptom	Possible Cause	Possible Solution
No music (doorchime & page ok) 	• Music Switch is turned off. • Mute Switch Configuration jumper inside MAC24 is in the wrong position. • Mis-wired Music Input Wallplate. • Fuses are blown.	1. Confirm that the audio source and the RCA patch cord between audio source & the Music Input Wallplate are good. 2. Be sure that Volume Controls are turned up and that the Music Switch, if being used, is on (LED=Green). 3. Confirm that the Input Level Adjustment pot on the Music Input Wallplate is turned up. 4. Check for +/- 12 VDC present at the Music Input Wallplate and verify L & R audio wires are connected properly. If not, check the fuses with a meter. Replace with 4A slow blow fuses only. 5. See Mute Switch Jumper Configuration diagram and confirm that the jumper is in the proper position. 6. Cycle power to the ADA by going to the main electrical circuit panel and turning the appropriate breaker off, waiting 30 seconds, then turning back on. If, after trying all of the above, the problem persists, call ELAN Technical Support ***FROM THE JOB SITE*** for assistance.

©2004 ELAN Home Systems. All Rights Reserved. 04/04.

Symptom	Possible Cause	Possible Solution
AUDIO No Doorbell  	• Bad, stuck or mis-wired Doorbell button • Doorbell level turned down	1. Be sure that Volume Controls are turned up. 2. Be sure that the Doorbell Volume Adjustment pot on the front of the MAC24 is turned up (clockwise). 3. With a piece of wire, paper clip, etc., short together the doorbell pins (DB+ and Common) on the MAC24. This bypasses any potential wiring or doorbell button problems. If the music mutes and the doorchime is heard, you may have a faulty doorbell button or wiring. If, after trying all of the above, the problem persists, call ELAN Technical Support ***FROM THE JOB SITE*** for assistance.
No Paging Audio (music is ok)	• Mis-wired telephone jack • Mis-wired Override Volume Control • Not using touch-tone telephone • Telephone incompatibility	1. Be sure that all Volume Controls are turned up. 2. Be sure that the Page Volume Adjustment pot on the front of the MAC24 is turned up (clockwise). 3. Confirm that Paging Audio is not being heard in all rooms and from all telephones. If this is not the case, you may have a mis-wired telephone jack, a faulty or incompatible telephone, or a mis-wired Volume Control w/ Override. 4. Verify that you are getting the System Dial Tone and press #,7 to page. If still unsuccessful, connect a single-line, corded, touch-tone telephone or butt set directly to the ADA Phone Out pins (“to” and “ro”) and try paging again. This bypasses any potential wiring problem occurring after the ADA. If, after trying all of the above, the problem persists, call ELAN Technical Support ***FROM THE JOB SITE*** for assistance.
Paging audio drops out	• Page volume set too high • Mis-wired Override Volume Control	1. Turn down the Page Volume Adjustment pot on the front of the MAC24 to a very low level (counter clockwise). Confirm that page no longer drops out, and slowly increase the level (clockwise) until you reach an acceptable volume without the page dropping out. *continued next page.....*

©2004 ELAN Home Systems. All Rights Reserved. 04/04.

Symptom	Possible Cause	Possible Solution
continued.... Paging audio drops out		2. If page still drops out, check the VC+/VC- connections at all Volume Controls that have the Override feature (a process of elimination, i.e. removing the VC+/VC- wires from each Volume Control one by one, may quickly lead you to the culprit). If, after trying all of the above, the problem persists, call ELAN Technical Support ***FROM THE JOB SITE*** for assistance.
Music is distorting	• MAC24WP Music Input Wallplate level is too high • One or more Volume Controls may be mis-wired or defective	1. Make sure you are feeding only a line level audio output (not speaker level!) to the Music Input Wallplate. Turn down the input level adjustment on Music Input Wallplate. 2. If music still distorts, one or more volume controls may be mis-wired or defective. To verify, remove all volume controls from the MAC24. Using an ohm meter on the disconnected wires coming back from the volume control to the MAC24, check to see that the impedance between the L+ and L-, and R+ and R- of all pairs of wires equals 6 to 9 ohms. If, after trying all of the above, the problem persists, call ELAN Technical Support ***FROM THE JOB SITE*** for assistance.
Music is cutting out	• MAC24WP Music Input Wallplate level is too high • Mute Switch jumpers in wrong position • MAC24 is overloaded and going into thermal shutdown	1. Make sure you are feeding only a line level audio output (not speaker level!) to the Music Input Wallplate. Turn down the input level adjustment on Music Input Wallplate. 2. Confirm that Mute Switch Configuration jumper is in the correct position 3. Be sure you have not exceeded the maximum recommended speaker and volume control limits outlined in this manual. Be sure you are using only the specified ELAN Volume Controls (MACVSO or MACVMO). 4. Remove all volume controls from the MAC24. Using an ohm meter on the disconnected wires coming back from the volume control to the MAC24, check to see that the impedance between L+ and L-, and R+ and R- of all pairs of wires equals 6 to 9 ohms. If, after trying all of the above, the problem persists, call ELAN Technical Support ***FROM THE JOB SITE*** for assistance.

©2004 ELAN Home Systems. All Rights Reserved. 04/04.

Symptom	Possible Cause	Possible Solution
TELEPHONE No Dial Tone (neither ELAN system dial tone or C.O. dial tone present)	• Mis-wired telephone jacks • Mis-wire between MAC24 and punchdown block	1. Confirm that dial tone is not present on any of the phones in the house. 2. Verify that +24VDC (+/- 4) is present between MAC24 phone out pins "to" and "ro". 3. Disconnect the incoming phone line from the MAC24 (pins "ti" and "ri"). Connect a single-line, corded, touch-tone telephone or butt set directly to the MAC24 Phone Out pins ("to" and "ro") and try paging again. This bypasses any potential wiring problem occurring after the MAC24. If, after trying all of the above, the problem persists, call ELAN Technical Support ***FROM THE JOB SITE*** for assistance.
Unable to dial out or no ring in	• Non touch-tone telephone • Inactive C.O. service • Mis-wired ELAN phone inputs and/or outputs • Telephone incompatibility • Too many phones (no ring in)	1. Verify that phone(s) is not set on "pulse". 2. Verify that the problem is not specific to a particular telephone. 3. Verify that C.O. service is active (if an RJ-31 jack was installed, unplug the ELAN line and connect a phone or butt set directly to the jack. If no RJ-31 jack was installed, disconnect the incoming phone line from the ELAN Phone In pins ("ti" and "ri") and connect a phone or butt set directly to the incoming line). Try dialing out/in. 4. Once C.O. Service is verified, reconnect the incoming line to the MAC24 Phone In pins ("ti" and "ri"), then connect a single-line, corded, touch-tone telephone or butt set directly to the MAC24 Phone Out pins ("to" and "ro"), verify system dial tone and try dialing out/in. This bypasses any potential wiring problem occurring after the MAC24. 5. A possible cause of 'no ring in' is that the number of phones in the house has exceeded the Ringer Equivalency voltage provided by the telephone company. To verify, unplug all but one telephone and have someone dial in. If the phone rings, check the Ringer Equivalency Number (REN) of all the phones in house (the FCC requires that this number be listed on all telephones). If the total REN exceeds 5.0 (including a REN of 0.6 for the YHN system), this may be the cause of your 'no ring in'. If, after trying all of the above, the problem persists, call ELAN Technical Support ***FROM THE JOB SITE*** for assistance.

©2004 ELAN Home Systems. All Rights Reserved. 04/04.

Symptom	Possible Cause	Possible Solution
No ELAN Telephone features or cannot break ELAN dial tone	• Non touch-tone phone • Incorrect key sequence • Telephone incompatibility	1. Verify system dial tone. 2. Verify that phone is not set to “pulse”. 3. Be sure you are using the correct key sequence to initiate the desired feature (see Telephone Quick Reference Guide immediately following the index). 4. Try another touch-tone telephone. If, after trying all of the above, the problem persists, call ELAN Technical Support ***FROM THE JOB SITE*** for assistance.
Phones ring once, then stop, or, phones ring, pick up, no one there	• Low Loop Current	1. Call your local phone company and find out the value of the ‘Loop Current’ being sent to the home. The system requires a minimum Loop Current of 18mA

TECHNICAL SUPPORT

FROM JOBSITE ONLY:	(800) 622-3526
All other Technical Support	(859) 269-7760
Fax	(859) 266-4655
Email	tech@elanhomesystems.com

©2004 ELAN Home Systems. All Rights Reserved. 04/04.

Limited Warranty

ELAN HOME SYSTEMS L.L.C. ("ELAN") warrants the MAC24 and the MAC24IWP to be free from defects in materials and workmanship for the period of Two Years (2 Years) from date of purchase. If within the applicable warranty period above purchaser discovers that such item was not as warranted above and promptly notifies ELAN in writing, ELAN shall repair or replace the item at the company's option. This warranty shall not apply (a) to equipment not manufactured by ELAN, (b) to equipment which shall have been installed by other than an ELAN authorized installer, (c) to installed equipment which is not installed to ELAN's specifications, (d) to equipment which shall have been repaired or altered by others than ELAN, (e) to equipment which shall have been subjected to negligence, accident, or damage by circumstances beyond ELAN's control, including, but not limited to, lightning, flood, electrical surge, tornado, earthquake, or other catastrophic events beyond ELAN's control, or to improper operation, maintenance or storage, or to other than normal use of service. With respect to equipment sold by, but not manufactured by ELAN, the warranty obligations of ELAN shall in all respects conform to the warranty actually extended to ELAN by its supplier. The foregoing warranties do not cover reimbursement for labor, transportation, removal, installation or other expenses which may be incurred in connection with repair or replacement.

Except as may be expressly provided and authorized in writing by ELAN, ELAN shall not be subject to any other obligations or liabilities whatsoever with respect to equipment manufactured by ELAN or services rendered by ELAN.

THE FOREGOING WARRANTIES ARE EXCLUSIVE AND IN LIEU OF ALL OTHER EXPRESSED AND IMPLIED WARRANTIES EXCEPT WARRANTIES OF TITLE, INCLUDING BUT NOT LIMITED TO IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

ATTENTION: TO OUR VALUED CONSUMERS
To ensure that consumers obtain quality pre-sale and after-sale support and service, ELAN Home Systems products are sold exclusively through authorized dealers. *ELAN products are not sold online.* **The warranties on ELAN products are NOT VALID if the products have been purchased from an unauthorized dealer or an online E-tailer. To determine if your ELAN reseller is authorized, please call ELAN Home Systems at (859) 269-7760.**

ELAN
HOME SYSTEMS
2428 Palumbo Drive Lexington, KY 40509
www.elanhomesystems.com

©2004 ELAN Home Systems. All Rights Reserved. 04/04.

NOTES:

©2004 ELAN Home Systems. All Rights Reserved. 04/04.

Telephone Quick Reference

PAGE	[#] , [PRS 7]	**"P"** for ***PAGE.*** Speak into the phone receiver and your voice will be heard throughout the house over the speakers. Pressing [#] automatically places a caller on hold; to return to the caller after the page, press [#] again.
PHONE-TO-PHONE INTERCOM	[#] , [PRS 7] , [Oper 0]	This allows you to talk with someone at another phone in the house after a page, without the conversation being heard over the speakers.
HOLD	[#] , [GHI 4]	**"H"** for ***HOLD.*** Allows you to place caller on hold, hang up, and take the call on another phone in the house.
DOOR SPEAKER	[#] , [DEF 3]	**"D"** for ***DOOR.*** Allows you to use a telephone to speak with a visitor at the door..
DOOR LATCH (OPTIONAL)	[#] , [DEF 3] , [Oper 0]	Activates the door latch relay. The relay operates as long as you hold the [Oper 0] .
SYSTEM	[#] , [WXY 9]	The System Bypass allows you to use outside phone services that require use of the [#] key.
MUSIC MUTE	[#] , [MNO 6]	This command allows you to mute the music coming through your speakers for the duration of an incoming or outgoing call.

Note: If you have a caller on the line and you activate any of the features, the caller is automatically placed on hold.

Off Hook Alert - If phone is left off hook, after two minutes a "beep" is heard over all the speakers.

Telemute - Music mutes for the duration of the telephone ring.

ELAN HOME SYSTEMS™

P/N 9900495 REV: C 04/04